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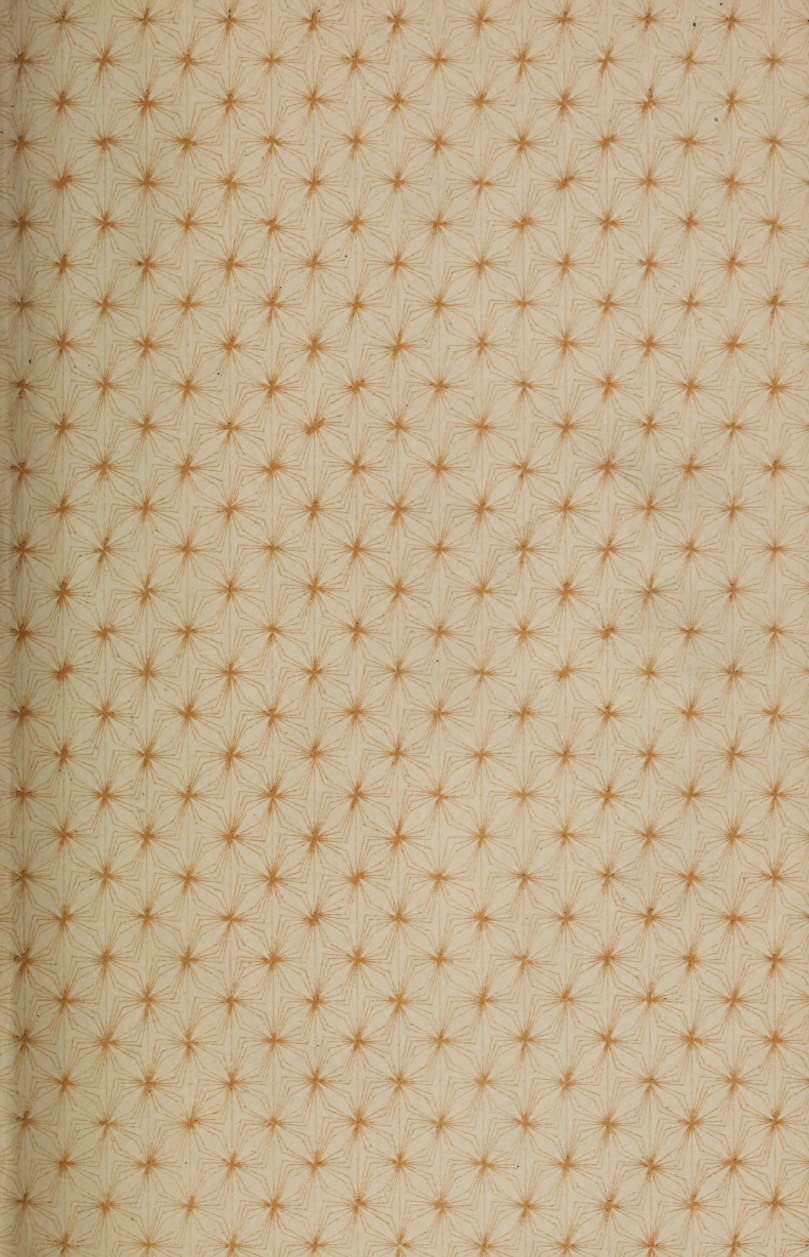
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COURSES OF STUDY AND GENERAL  
INFORMATION.



1899-1900.

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PUBLISHED BY THE STATE AGRICULTURAL COLLEGE,
FORT COLLINS, COLORADO,
1900.

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FORT COLLINS EXPRESS PRINT, *d*  
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## LOCATION AND HISTORY.

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*Location.*—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer County, which is one of the most prosperous agricultural counties in the State. The town contains 4,000 inhabitants, and is beautifully situated about five miles from the foothills, and in full view of Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light, and its side walks are exclusively made of flag-stone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Colorado and Southern Railway are its buildings and the farm. Visitors are always welcome. They find the town accessible by three trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

*History.*—The origin of The State Agricultural College of Colorado, like that of its sister institutions in other states, dates back to an act of Congress, passed July 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, "*a college where the leading object shall be, without excluding other scientific and classical studies, and including Military Tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.*"

This act gave the College an endowment of 90,000 acres of land.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State *two hundred and forty acres of land* whereon to erect the necessary build-



ings. In 1877, the Legislature provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The corner stone of the Main College Building was laid July 29, 1878. This building was completed and ready for occupancy early in the following year.

The initial term of the College opened September 1, 1879. The record shows the enrollment of twenty different students at the close of this term. There was but one course of study. The college year began with the spring term and closed with the autumn term, the vacation season occurring in midwinter. The calendar for 1881-1882 shows the abandonment of this arrangement and the adoption of the present plan of three consecutive terms of thirteen weeks each, with a short vacation at Christmas season and a long vacation extending from "Commencement Day," early in June, to the first Monday in September.

Elective studies are first noted in the catalogue for 1886-'87. The next year brings the announcement for the differentiation of the work at the close of the Sophomore year. Two courses, the Agricultural and the Mechanical, are outlined. The Irrigation Engineering Course and the Ladies' Course were first scheduled in the catalogue for 1889-'90. The Commercial Course, to be completed in two years, was introduced in 1896.

The enrollment of students and the number of graduates for the last four years, is as follows:

| Years. | Males. | Females. | Total. | Graduates. |
|--------|--------|----------|--------|------------|
| 1897   | 223    | 112      | 335    | 11         |
| 1898   | 245    | 99       | 344    | 13         |
| 1899   | 251    | 94       | 345    | 18         |
| 1900   | 245    | 119      | 364    | 30         |

The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoology and Entomology, Mechanical Engineering, Civil and Irrigation Engineering, Mathematics, Logic and

Political Economy, History and Literature, Rhetoric and Philosophy, Domestic Science, Veterinary Science, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, German, Oratory, and Physical Culture.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

"The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, *and shall be a high seminary of learning*, in which the graduates of the common schools, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those Sciences and arts which bear directly upon *agriculture and kindred industrial pursuits.*"

# **COURSES OF STUDY.**

## SUB-FRESHMAN YEAR.

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### FIRST TERM.

Algebra.....Wentworth  
Lessons in English.....Lockwood  
Civil Government.....Fiske

Freehand Drawing.

Afternoons: { Farm, 2-3; Shop, 1-3.  
Domestic Science.

### SECOND TERM.

Algebra.....Wentworth  
American Literature.....Matthews  
Lessons in English.....Lockwood

Freehand Drawing.

Afternoons: { Shop.  
Domestic Science.

### THIRD TERM.

Algebra.....Wentworth  
American Literature.....Matthews  
Lessons in English.....Lockwood

Freehand Drawing.

Afternoons: { Shop, 1-3; Garden, 2-3.  
Domestic Science.

Military Drill and Physical Culture Daily.



## FRESHMAN YEAR.

---

### FIRST TERM.

|                                            |                |
|--------------------------------------------|----------------|
| Geometry .....                             | Wentworth      |
| Agriculture or Carpentry and Joinery ..... | Bailey or Goss |
| Botany .....                               | Gray           |
| General History .....                      | Sheldon        |

Afternoons: { Garden, 2-3; Shop, 1-3.  
                  { Domestic Science.

### SECOND TERM.

|                                        |           |
|----------------------------------------|-----------|
| Geometry .....                         | Wentworth |
| Rhetoric and Rhetorical Analysis ..... | Genung    |
| General History .....                  | Sheldon   |

Mechanical Drawing.

Afternoons: { Shop.  
                  { Domestic Science.

### THIRD TERM.

|                                        |           |
|----------------------------------------|-----------|
| Solid Geometry .....                   | Wentworth |
| Botany .....                           | Gray      |
| Rhetoric and Rhetorical Analysis ..... | Genung    |

Mechanical Drawing.

Afternoons: { Shop, 1-3; Farm, 2-3.  
                  { Domestic Science.

Military Drill and Physical Culture Daily.

The course from this point is separated into:

1. The Agricultural—A.
2. The Mechanical Engineering—M.
3. The Civil and Irrigation Engineering—C.
4. The Ladies'—L.

All lead to the degree of Bachelor of Science.

## SOPHOMORE YEAR.

### FIRST TERM.

|                  |           |
|------------------|-----------|
| Algebra .....    | Wentworth |
| Literature ..... | Kellogg   |
| Physiology ..... | Martin    |

Mechanical Drawing.

Afternoons: { Shop, A., C., M.  
Domestic Science, Cooking.

### SECOND TERM.

|                                   |                      |
|-----------------------------------|----------------------|
| Trigonometry .....                | Wentworth            |
| Physiology .....                  | Martin               |
| Physics .....                     | Deschanel            |
| Farm Buildings, A .....           | Lectures             |
| Hygiene and Sanitation, L .....   | Public Health Essays |
| Descriptive Geometry, C., M ..... | Faunce               |

Afternoons: { Physiological Laboratory, 1-2.  
Physical Laboratory, 1-2.

### THIRD TERM.

|                                                             |           |
|-------------------------------------------------------------|-----------|
| Physics .....                                               | Deschanel |
| Surveying, A., C., M .....                                  | Raymond   |
| Domestic Science, (Emergencies, Conversation, etc.) L ..... | Lectures  |
| Stock Breeding, A .....                                     | Warfield  |
| Algebra .....                                               | Wentworth |
| Psychology, L .....                                         | Halleck   |
| Descriptive Geometry, C., M .....                           | Faunce    |

Afternoons: { Surveying, A., C., M., 1-2.  
Dairying, L., 1-2.

Physical Laboratory, A., C., M., L., 1-2.  
Military Drill and Physical Culture Daily.

## AGRICULTURAL COURSE.

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### JUNIOR YEAR—FIRST TERM.

|                               |           |
|-------------------------------|-----------|
| Stock Feeding.....            | Stewart   |
| Horticulture .....            | Lectures  |
| Physics .....                 | Deschanel |
| Landscape Gardening, 1-2..... | Lectures  |
| Meteorology, 1-2 .....        | Waldo     |

Afternoons: { Physical Laboratory, 3-5.  
                   { Horticultural Laboratory, 2-5.

### SECOND TERM.

|                           |             |
|---------------------------|-------------|
| Physiological Botany..... | Strasburger |
| Elementary Geology.....   | Tarr        |
| Zoology .....             | Orton       |
| Zoological Laboratory.    |             |

Afternoons: Botanical Laboratory.

### THIRD TERM.

|                             |                      |
|-----------------------------|----------------------|
| Recent History.....         | McCarthy and Library |
| Entomology .....            | J. B. Smith          |
| Systematic Geology .....    | Dana                 |
| Irrigation Hydraulics ..... | Lectures             |

Afternoons: { Entomological Laboratory, 2-5.  
                   { Farm, 3-5.

Military Drill daily.

## AGRICULTURAL COURSE.

### SENIOR YEAR—FIRST TERM.

|                                        |                      |
|----------------------------------------|----------------------|
| Chemistry.....                         | Remsen               |
| Dairying.....                          | Gurler               |
| Literature.....                        | Hawthorne and Lemmon |
| Constitution of the United States..... | Andrews              |

Afternoons: { Dairying, 2-5.  
Chemical Laboratory, 3-5.

### SECOND TERM.

|                   |          |
|-------------------|----------|
| Chemistry.....    | Remsen   |
| Horticulture..... | Lectures |
| Agriculture.....  | Lectures |
| Logic.....        | Gregory  |

Afternoons: Chemical Laboratory.

### THIRD TERM.

|                             |                    |
|-----------------------------|--------------------|
| Agricultural Chemistry..... | Johnson—Aikman     |
| Political Economy.....      | Walker             |
| Recent History.....         | Wilson and Library |
| Sociology.....              | Small and Vincent  |

Afternoons: { Chemical Laboratory, 1-2.  
Garden, 1-2.

Military Drill daily.



## MECHANICAL ENGINEERING COURSE.

### JUNIOR YEAR—FIRST TERM.

|                       |           |
|-----------------------|-----------|
| Foundry Practice..... | West      |
| Boilers.....          | Wilson    |
| Physics.....          | Deschanel |
| Higher Algebra.....   | Wentworth |

Afternoons: { Physical Laboratory, 3-5.  
 Shop, 2-5.

### SECOND TERM.

|                         |              |
|-------------------------|--------------|
| Logic.....              | Gregory      |
| Elementary Geology..... | Tarr         |
| Analytic Geometry.....  | Wentworth    |
| Drawing.....            | Instrumental |

Afternoons: Shop.

### THIRD TERM.

|                                      |                 |
|--------------------------------------|-----------------|
| Drawing.....                         | Instrumental    |
| Calculus.....                        | Taylor          |
| Principles of Mechanism.....         | Stahl and Woods |
| Workshop Methods and Appliances..... | Rose            |

Afternoons: Shop.

Military Drill daily.

## MECHANICAL ENGINEERING COURSE.

### SENIOR YEAR—FIRST TERM.

|                   |              |
|-------------------|--------------|
| Drawing.....      | Instrumental |
| Calculus .....    | Taylor       |
| Chemistry .....   | Remsen       |
| Steam Engine..... | Holmes       |

Afternoons: { Shop, 2-5.  
                  { Chemical Laboratory, 3-5.

### SECOND TERM.

|                             |              |
|-----------------------------|--------------|
| Chemistry .....             | Remsen       |
| Drawing.....                | Instrumental |
| Strength of Materials ..... | Merriman     |
| Transmission of Power ..... | Lectures     |

Afternoons: { Chemical Laboratory, 3-5.  
                  { Testing Materials, 2-5.

### THIRD TERM.

|                        |                    |
|------------------------|--------------------|
| Steam Engineering..... | Lectures           |
| Special Machines ..... | Lectures           |
| Political Economy..... | Walker             |
| Recent History .....   | Wilson and Library |

Afternoons: Mechanical Engineering Laboratory.  
Military Drill Daily.

## CIVIL AND IRRIGATION ENGINEERING COURSE.

### JUNIOR YEAR—FIRST TERM.

Irrigation Engineering ..... Wilson and Flynn  
 Physics. .... Deschanel  
 Higher Algebra..... Wentworth  
 Horticulture ..... Lectures

Afternoons:  $\left\{ \begin{array}{l} \text{Physical Laboratory, 3-5.} \\ \text{Horticulture, 2-5.} \end{array} \right.$

### SECOND TERM.

Higher Surveying..... Raymond  
 Analytic Geometry ..... Wentworth  
 Elementary Geology..... Tarr  
 Drawing ..... Instrumental  
 Afternoons: Field and Laboratory work in Engineering.

### THIRD TERM.

Irrigation Hydraulics..... Lectures  
 Calculus..... Taylor  
 Map and Topographical Drawing .....  
 Afternoons: Field Engineering.  
 Military Drill daily.

## CIVIL AND IRRIGATION ENGINEERING COURSE.

### SENIOR YEAR—FIRST TERM.

|                                        |          |
|----------------------------------------|----------|
| Calculus .....                         | Taylor   |
| Chemistry .....                        | Remsen   |
| Constitution of the United States..... | Andrews  |
| Reservoirs and Dams, 1-2.....          | Lectures |
| Meteorology, 1-2.....                  | Waldo    |

Afternoons: { Engineering, 2-5.  
                  { Chemical Laboratory, 3-5.

### SECOND TERM.

|                             |              |
|-----------------------------|--------------|
| Chemistry .....             | Remsen       |
| Strength of Materials ..... | Merriman     |
| Logic .....                 | Gregory      |
| Drawing .....               | Instrumental |

Afternoons: { Chemical Laboratory, 3-5.  
                  { Testing of Materials, 2-5.

### THIRD TERM.

|                          |                    |
|--------------------------|--------------------|
| Hydraulics.....          | Lectures           |
| Trusses and Bridges..... | Merriman           |
| Political Economy.....   | Walker             |
| Recent History.....      | Wilson and Library |

Afternoons: Engineering.

Military Drill daily.

## LADIES' COURSE.

### JUNIOR YEAR—FIRST TERM.

|                                              |           |
|----------------------------------------------|-----------|
| Domestic Science, Chemistry of Cooking ..... | Richards  |
| Landscape Gardening, 1-2.....                | Lectures  |
| Meteorology, 1-2.....                        | Waldo     |
| Physics .....                                | Deschanel |
| Horticulture .....                           | Lectures  |

Afternoons: { Physical Laboratory, 3-5.  
                   { Horticultural Laboratory, 2-5.

### SECOND TERM.

|                                              |         |
|----------------------------------------------|---------|
| Domestic Science, Science of Nutrition ..... | Atwater |
| Elementary Geology.....                      | Tarr    |
| Zoology.....                                 | Orton   |
| Zoological Laboratory .....                  | _____   |

Afternoon: Domestic Science, Cooking.

### THIRD TERM.

|                                      |                      |
|--------------------------------------|----------------------|
| Domestic Science, Home Nursing ..... | Weeks                |
| Geology.....                         | Dana                 |
| Recent History.....                  | McCarthy and Library |
| Entomology.....                      | J. B. Smith          |

Afternoons: { Domestic Science, Sewing.  
                   { Latin (Elective).  
                   { German (Elective).



## LADIES' COURSE.

### SENIOR YEAR—FIRST TERM.

|                                        |                      |
|----------------------------------------|----------------------|
| Constitution of the United States..... | Andrews              |
| Ethics .....                           | Mackenzie            |
| Chemistry .....                        | Remsen               |
| Literature.....                        | Hawthorne and Lemmon |

Afternoons: { Library in Literature, 2-5.  
 { Chemical Laboratory, 3-5.

### SECOND TERM.

|                            |                   |
|----------------------------|-------------------|
| Chemistry .....            | Remsen            |
| Sociology.....             | Small and Vincent |
| Logic .....                | Gregory           |
| Philosophy of History..... | Andrews           |

Afternoons: Chemical Laboratory.

### THIRD TERM.

|                               |                    |
|-------------------------------|--------------------|
| Political Economy .....       | Walker             |
| Chemistry of Common Life..... | Johnston           |
| Recent History .....          | Wilson and Library |
| Sociology.....                | Small and Vincent  |

Afternoons: { Sociology, 1-2.  
 { Recent History, 1-2.  
 { Latin (Elective).  
 { German (Elective).

## COMMERCIAL DEPARTMENT.

### JUNIOR YEAR—FIRST TERM.

|                                                  |           |
|--------------------------------------------------|-----------|
| General History .....                            | Sheldon   |
| Plane Geometry .....                             | Wentworth |
| Elementary Bookkeeping .....                     | Sadler    |
| Commercial Arithmetic and Rapid Calculation..... | Sadler    |
| Spelling and Penmanship.                         |           |

### SECOND TERM.

|                                                  |           |
|--------------------------------------------------|-----------|
| General History.....                             | Sheldon   |
| Plane Geometry.....                              | Wentworth |
| Rhetoric and Rhetorical Analysis .....           | Genung    |
| Advanced Bookkeeping.....                        | Sadler    |
| Commercial Arithmetic and Rapid Calculation..... | Sadler    |
| Spelling and Penmanship.                         |           |

### THIRD TERM.

|                                                  |           |
|--------------------------------------------------|-----------|
| Rhetoric and Rhetorical Analysis.....            | Genung    |
| Solid Geometry.....                              | Wentworth |
| Commercial Arithmetic and Rapid Calculation..... | Sadler    |
| Business Practice and Banking.....               | _____     |
| Penmanship and Business Correspondence.          |           |

## COMMERCIAL DEPARTMENT.

### SENIOR YEAR—FIRST TERM.

|                                        |              |
|----------------------------------------|--------------|
| Literature .....                       | Kellogg      |
| Constitution of the United States..... | Andrews      |
| Stenography.....                       | Isaac Pitman |
| Business Geography.....                | Tilden       |
| Typewriting,                           |              |

### SECOND TERM.

|                   |                   |
|-------------------|-------------------|
| Logic .....       | Gregory           |
| Sociology.....    | Small and Vincent |
| Stenography.....  | Isaac Pitman      |
| Business Law..... | Musselman         |
| Typewriting.      |                   |

### THIRD TERM.

|                                  |                   |
|----------------------------------|-------------------|
| Political Economy.....           | Walker            |
| Sociology.....                   | Small and Vincent |
| Stenography.....                 | Isaac Pitman      |
| Business Law.....                | Musselman         |
| Typewriting and Office Practice. |                   |

## SCHEDULE FOR THE FALL TERM, 1900.

| Time               | Sub-Freshman                             | Freshman                                   | Sophomore                                      | Junior                                                                                                | Senior                                                                                                                                          |
|--------------------|------------------------------------------|--------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:00               | Civil Government                         | General History<br>Geometry                | Mechanical<br>Drawing                          | Landscape Gardening 1-2<br>Meteorology 1-2<br>Higher Algebra                                          | Dairying<br>Reservoirs and Dams 1-2<br>Meteorology 1-2<br>Ethics<br><i>Business Geography</i><br>Mechanical Drawing                             |
| 8:45               | Lessons in English<br>Algebra            | Botany<br>General History                  | Algebra                                        | Irrigation Engineering<br>Boilers<br>Chemistry of Cooking<br>and Cleaning<br>Stock Feeding            | United States<br>Constitution                                                                                                                   |
| 9:30               | Freshhand Drawing                        | Geometry<br>Botany                         | Literature                                     | Physics<br><i>Commercial Arithmetic</i>                                                               | Calculus<br>Literature                                                                                                                          |
| 10:15              | Algebra<br>Lessons in English            | Agriculture or<br>Carpentry and<br>Joinery | Physiology                                     | Horticulture<br>Foundry Practice<br><i>Spelling</i>                                                   | Chemistry                                                                                                                                       |
| 11:05              | General Assembly                         |                                            |                                                |                                                                                                       |                                                                                                                                                 |
| 11:20              | Military Drill and Commercial Arithmetic |                                            |                                                |                                                                                                       |                                                                                                                                                 |
| 1:30<br>or<br>3:30 | Farm 2-3<br>Shop 1-3<br>Sewing           | Garden 2-3<br>Shop 1-3<br>Sewing           | Shop<br>Cooking<br>(Canning and<br>Preserving) | <i>Penmanship</i><br><i>Bookkeeping</i><br>Physical Laboratory 3-5<br>Horticultural " 2-5<br>Shop 2-5 | <i>Stenography</i><br><i>Typewriting</i><br>Dairying 2-5<br>Engineering 2-5<br>Shop 2-5<br>Chemical Laboratory 3-5<br>Library in Literature 2-5 |

Subjects in *italics* belong to the Commercial Department exclusively. Classes in Latin and German in afternoon.

SCHEDULE FOR THE WINTER TERM, 1900-1901.

| Time         | Sub-Freshman                | Freshman                    | Sophomore                                                | Junior                                                                                                           | Senior                                                                           |
|--------------|-----------------------------|-----------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 8:00         | American Literature         | Geometry<br>Drawing         | Farm Bldgs.<br>Household Hygiene<br>Descriptive Geometry | Commercial Arithmetic<br>Irrigation Engineering<br>Zoology                                                       | Logic<br>Transmission of Power                                                   |
| 8:45         | Freehand Drawing<br>Algebra | Rhetoric<br>General History | Physics                                                  | Anal. Geometry<br>Zoological Lab'y                                                                               | Chemistry                                                                        |
| 9:30         | Algebra<br>Freehand Drawing | Drawing<br>Rhetoric         | Trigonometry                                             | Geology                                                                                                          | Horticulture<br>Strength of Materials<br>Philosophy of History<br>Commercial Law |
| 10:15        | Lessons in English          | General History<br>Geometry | Physiology                                               | Science of Nutrition.                                                                                            | Sociology<br>Agriculture<br>Drawing                                              |
| 11:05        | General Assembly in Chapel  |                             |                                                          |                                                                                                                  |                                                                                  |
| 11:20        | Military Drill              |                             |                                                          |                                                                                                                  |                                                                                  |
| 1:30 to 5:30 | Shop<br>Sewing              | Shop<br>Sewing              | Physiological Lab'y 1-2<br>Physical Lab'y 1-2            | Physiological Botany and Botanical Lab'y<br>Shop<br>Engineering<br>Cooking<br>Advanced Bookkeeping<br>Penmanship | Stenography and Type-writing<br>Chemical Laboratory 3-5<br>Testing Materials 2-5 |

Subjects in *italics* belong to the Commercial Department exclusively. Class 33 in Latin and German in afternoon.



## SCHEDULE FOR THE SPRING TERM, 1901.

| Time  | Sub-Freshman                | Freshman                                    | Sophomore                                                  | Junior                                                                                 | Senior                                                                                                                                   |
|-------|-----------------------------|---------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 8:00  | Algebra<br>Freehand Drawing | Rhetoric<br>Drawing                         | Physics                                                    | Recent History and Sociology (alternate days).<br>Calculus                             | Chemistry of Common<br>Life<br><i>Stenography</i>                                                                                        |
| 8:45  | Lessons in English          | Geometry<br>Botany                          | Algebra                                                    | Home Nursing.<br>Special Machines                                                      | Hydraulics<br>Steam Engine Indicator<br><i>Stenography</i>                                                                               |
| 9:30  | American Literature         | Botany<br>Geometry                          | Surveying<br>Psychology                                    | Principles of Mechanism<br>Drawing, C. E.<br><i>Commercial Arithmetic</i><br>(geology) | Political Economy<br>or<br>Psychology                                                                                                    |
| 10:15 | Algebra<br>Freehand Drawing | Drawing<br>Rhetoric                         | Descriptive<br>Geometry<br>Domestic Science<br>Agriculture | Drawing, C. E.<br>Drawing, M. E.<br>Entomology<br><i>Spelling</i>                      | <i>Business Law</i><br>Agricultural Chemistry<br>Mechanical Engineering<br>Trusses and Bridges                                           |
| 11:05 | General Assembly in Chapel  |                                             |                                                            |                                                                                        |                                                                                                                                          |
| 11:20 | Military Science            |                                             |                                                            |                                                                                        |                                                                                                                                          |
| 1:30  | Shop 1-3<br>Garden 2-3      | Shop 1-3<br>Farm 2-3<br>Domestic<br>Science | Physical Laboratory 1-2<br>Surveying 1-2<br>Dairying 1-2   | Entomology 2-5<br>Farm 3-5<br>Shop<br>Civil Engineering<br><i>Pennmanship</i>          | Chemical Laboratory 1-2<br>Garden, 1-2<br>Mechanical Eng. Labr'y<br>Civil Engineering<br>Recent History Labr'y 1-2<br>Social Science 1-2 |
| 3:30  | Domestic Science            | Shop 1-3<br>Farm 2-3                        | Physical Laboratory 1-2<br>Surveying 1-2                   | Shop<br>Sewing<br>Business Practice                                                    | Mechanical Eng. Labr'y<br>Domestic Science<br><i>Stenography and Typewriting</i><br>Office Practice                                      |

Subjects in *Italics* belong to the Commercial Department. Recitations in German and Latin in afternoon.

**DEPARTMENTS  
OF INSTRUCTION.**

## AGRICULTURE.

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W. W. COOKE, B. S., A. M.

F. L. WATROUS.

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As this is an Agricultural College, it is natural to expect that the Agricultural Department would be especially fostered by the College authorities. A large appropriation is made each year for carrying on the operations and great care is taken to make the work, both out-doors and in the class-room, eminently practical—to teach the student what he needs to know in his every-day life on the farm after graduation.

The College Farm, of two hundred and forty acres, is happily situated for the purposes of instruction. Here we have exemplified most of the problems of getting water to the land and carrying off the surplus and seepage, that will arise anywhere in the State. The main irrigation water supply of the Farm is brought in an underground pipe line nearly a mile from the canal; it is then carried by an inverted siphon to a reservoir on the top of a knoll, from which it is distributed to the various fields. The gathering of underground water and bringing it to the surface for irrigation purposes is exemplified by more than a mile of ditches and drains that tap the sloughs west of the farm and provide, free of charge, a large part of the irrigation water used on the Farm. On the other hand, the carrying away of surplus water and the reclaiming of seepage land is here shown in all its phases. The finest crops on the farm are grown on what used to be a cat-tail swamp, reclaimed by a single line of tile. Our drainage system is, at the present time, being extended by the addition of more than a thousand feet of main tile line.

The farm is equipped with devices for measuring the flow

and volume of water so that the student can learn to *know* how much water is being applied to crops and relatively different needs of various crops.

Especially valuable to the student is the fact that the Farm is a part of the Experiment Station. He has the advantage of watching the several experiments and noting the results. Here he can see and become acquainted with all the new forage and grain crops that are heralded by the seed trade, learn their adaptability to Colorado soil and conditions, while reference to the very complete library of the publications of all the other Experiment Stations will enable him to form a correct judgment as to their value for Colorado as compared with their usefulness in other parts of the country. This feature alone will save the student a great deal of time and money when he comes to carrying on a farm of his own.

Since Colorado is a great stock-producing State, one would expect the Live-Stock Department to be well supplied; nor will he be disappointed. The production of meat naturally holds the first place, and the possibilities in this line are exemplified by the finest herd of registered Shorthorns to be found in the West. Several additions to the herd have been made recently at large expense, and it is the avowed intention of the College authorities to have here as an object lesson to the student equally good herds of the other breeds of cattle as soon as the finances of the College will permit.

But the dairy side has not been neglected. The student will find here a choice herd of registered Jerseys, the milk of which is handled by the students in the College Dairy Department. In the course of his regular work the student is taught the good and bad points of dairy cows, and learns to score them according to the accepted standards of the breed.

In sheep, the College is supplied with a breeding flock of fine registered Shropshires, from which the student learns the possibilities of Colorado for the production of early lambs, and a flock of grade Merinos that are run under the conditions and methods common in the State.

The study of the herd of registered Berkshires at the Farm

shows the student the use of alfalfa pasture in hog raising as compared with the exclusive grain feeding of the East.

Some extra fine Clydesdale horses complete the present stock on the Farm.

*Classroom Work.*—The classroom work of the Agricultural Department begins in the Freshman year, when the student takes up the fundamental principles that underlie all agriculture. He studies the nature of the soil; the methods and uses of cultivation, amount and kind of plant food required by different crops; different kinds of fertilizers, their relative value and methods of application; need of the plant for water; proper time and method of applying; principles of farm drainage and methods of laying tile drains. A part of the time is devoted to the study of the history, characteristics, and relative value of the various breeds of domestic animals.

In the Sophomore year the student takes up the subject of *Farm Buildings*. He first completes a set of buildings for general conditions applicable to all countries, and then specializes with sets of farm buildings and corrals adapted to the special Colorado conditions for dairy herd, a bunch of fattening steers, and a flock of two thousand sheep. The student makes out the specifications, draws the plans and elevations, and makes out the complete bills for all the necessary materials and their cost.

The Spring term of the Sophomore year is devoted to the very important subject of *Stock-Breeding*. The student learns the principles of heredity; the advantages and disadvantages of in-breeding and cross-breeding; he learns to make out pedigrees and to estimate their value. The large amount of stock of the Farm furnishes him an abundance of material and is a constant object lesson in the application of the principles learned.

The subject of *Stock Feeding* is begun in the Junior year. More time is devoted to this than to any other one subject, because this is made to include not only the feeding of the animals on the Farm, but the raising of the crops and the conditions that determine what feeds shall be raised and what purchased.



The student first learns the fundamental principles of animal nutrition, then the application of these principles to the general feeding of animals under average conditions. Lastly he takes up animal feeding under the special Colorado conditions of climate and the feeds that are best adapted for cultivation and feeding in this State. The subject is carried over into the Senior year, and during that year the student spends several weeks on the most interesting study, the application of these principles of the feeding of farm animals to the feeding of human beings. He learns the proper feeding for the best hard mental labor, and how to make a ration suited to the champions on the athletic field. The whole subject of animal feeding is abundantly illustrated by charts, tables, and museum specimens of feeds, forage plants, and cereals.

*Dairying* is taught in the Senior year both from text-book and by actual practice in the College dairy. The Dairy Department is supplied with the best modern apparatus for handling milk by either separator or deep cold setting process; churns and butter workers, both separate and combined, and full sets of apparatus for the testing of milk by the rapid, cheap, and easy modern methods. The student learns the use of all of these by actually handling the milk from cow to butter tub, and also learns the methods of valuing milk and of paying for milk according to test.

In addition to the course in *Dairying* in the regular four years' agricultural course, the young women of the Ladies' Course take the laboratory work in *Dairying* during their Sophomore year.

In the Senior year the subject of Bacteriology is considered, more particularly with reference to the part that the bacteria play in the dairy. The student learns what bacteria are his friends and how to get the best results from them; he also learns how to decrease or overcome the bad effects of the injurious bacteria. Some time is also devoted to the relation of bacteria to human beings.

The organic law of the College requires that all students devote part of the afternoon to hand work either in the laboratories or on the Farm or Garden. The work on the Farm be-

gins in the Sub-Freshman year and is carried on through portions of the Freshman, Junior and Senior years. The aim, in all of the work, is to teach the student not merely the operations of farming and the handling of farm implements, but the principles that underlie the first, and the handling, care and repairing of the second. He studies the draft of farm tools, the measurement of water, stock judging, and the scoring of beef cattle, dairy cows and draft horses. In the Freshman year part of the time is spent in the dairy laboratory as a preliminary to the more extended work of the Senior year, while in the Junior year the student makes a special study of the experiments that are being conducted on the Farm.

It will be seen that the four years' Agricultural Course is designed to give the student a thorough knowledge of the principles and practices of Agriculture and at the same time to provide enough training in other branches of learning to furnish a well rounded education that shall fit him for the general affairs of life.

## BOTANY AND HORTICULTURE.

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C. S. CRANDALL, M. S.,

C. H. POTTER, M. S.

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*Botany.*—The study of Botany begins with the Freshman year. The Fall term is devoted mainly to *Structural Botany*. The plant as an individual is studied as to its parts or organs—the relation each part bears to the whole—the variations in the parts and the uses they serve. Roots, branches, buds, leaves, flowers, and fruits are placed before the student and descriptive terms are learned by direct application. The classroom is provided with numerous charts, and with a series of enlarged and colored models of flowers which are dissected to show clearly many of the intricacies of nature.

Gray's *Lessons* is used as a text to supplement the instruction from the plants themselves. A few days at the close of the term are devoted to classification and the relations of plants to each other.

The Spring term of the same year is devoted to *Systematic Botany*. Dissecting microscopes and necessary tools are furnished, and plants are each day supplied. Students are taught the application of the principles learned during the first term, so that they may understand the methods of determining the names of plants. But the determination of names is entirely secondary to the main study which is of plant relationships, the variation between individuals of the same and of different species, and the adaptations of plants or of particular organs to special needs. The student is lead to seek for reasons for special forms and to describe accurately what he finds.

The great variety of plants at hand enables the student to become familiar with the leading natural orders and to study a variety of adaptations to different habitats. Coulter's *Manual of Rocky Mountain Botany* is the text-book used.

The herbarium which adjoins the classroom contains

about 12,000 sheets of North American plants, and about 1,300 species of the plants of Colorado. It is freely used by students and is largely drawn upon for means of illustration.

*Advanced Botany.*—In the Winter term of the Junior year the Agricultural students are given a full term course in advanced Botany. The time allotted is one morning recitation period, and two hours afternoon laboratory work each day. Strasburger's *Practical Botany* is used as a text. The early part of the term is given to Histology, or a study of the minute structure of plants. After some degree of skill is acquired in the use of the microscope and other apparatus, physiological problems are selected and assigned for investigation. This physiological work occupies the student during about half the term.

The laboratory is well equipped. Students are supplied with compound microscopes, microtomes, and all accessories necessary for microscopic work. For physiological work there are culture ovens, an auxanometer, water and sand baths, balances, and a full assortment of glassware and chemicals. An electric motor furnishes power for light work, gas and water are conveniently arranged, and in general the equipment is modern, and offers excellent advantages for work of this character. The greenhouses and herbarium furnish abundant material for all classes of work.

*Horticulture.*—Instruction in Horticulture is given by lectures. The first course of thirteen weeks, in the Fall term of the Junior year, deals mainly with methods. Under the general head of vegetable gardening the principal topics considered are—the best soil and situation for a garden; manner of laying out a garden; irrigation of garden crops; rotation of crops; methods of planting and management; composts and commercial fertilizers; care of tools; construction, management and uses of hot-beds and cold-frames; harvesting, marketing and storing vegetables. Brief historical notes, and full cultural directions are given concerning all the vegetable plants commonly grown in gardens.

Small fruit culture is next taken up; each kind is considered in detail as to its history, propagation, cultivation, har-



vesting, marketing, the best varieties, and the diseases to which it is subject. Then follows a series of lectures upon methods of plant propagation, including a thorough discussion of budding and grafting. Plants, tools, and other appliances are provided for classroom use in giving practical illustrations of the subjects treated.

A small portion of the term is devoted to Sylviculture. Lectures are given on the gathering and preservation of forest tree seed, the planting of seed, and the care of seedlings; on the value of trees for timber and ornament, for hedges, screens and shelter belts.

During four weeks of the term the students have laboratory work two hours each day. This time is given to practical work, embracing the making of cuttings and general greenhouse work, and grafting by various methods.

A second course of lectures during the Winter term of the Senior year treats of the theory of Horticulture, and considers in detail the underlying principles of garden practice; lectures are given upon the history of cultivated plants, variation of plants under cultivation, as influenced by climate, latitude, altitude, and general surroundings; cross-fertilization and hybridization. Pomology is then taken up, and the theory and practice of orchard management considered in detail. Floriculture is also treated on such topics as the construction, heating, and management of greenhouses, the propagation, cultivation, and management of greenhouse plants for commercial or private purposes.

*Landscape Gardening.*—One-half of the Fall term of the Junior year is allotted to this study. The general principles of the art are taught by lectures, and practical instruction given in the selection and laying out of city and country places. The principal topics are the selection of a place, the location of buildings, drives, walks, what to plant and how to plant. The works of Downing and Kemp are used as books of reference.



## MECHANICAL ENGINEERING.

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J. W. LAWRENCE, B. S.,

L. D. CRAIN, B. M. E.,

A. P. GREENACRE, B. S.,

WILLIAM GARBE.

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*General Statement.*—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines, and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops, and experimental laboratory. The studies of this course, which are in common with other courses, are enumerated and described elsewhere in this catalogue; the others are:

Drawing.

Carpentry and Joinery; also wood-working machinery.

Pattern making and foundry work.

Forge work.

Machine and vise work in metals.

Principles of mechanism.

Strength of materials.

Boilers.

The steam engine.

Machine design, machinery, and mill work.

*Drawing.*—Free-hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems;

orthographic and isometric projections and projection of shadows; development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings.

Students are taught how to make careful tracings from their drawings, and from these tracings how to make copies by the blue process; the black process is also taught. Considerable copying of machinery from good examples is required; there are in the drafting room for this purpose, working drawings from prominent manufacturers, and from the engineering department of the United States Navy.

The students receive careful instruction in lettering working drawings, so that in addition to being skillfully lettered, they shall be easily read and understood. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

*Carpentry and Joinery.*—The class room work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

For the purpose of class room illustration, the Department possesses a good collection of models of the various joints used in timber work in building construction. The strength of various timber joints used in building construction is considered.

*Pattern-making and Foundry Work.*—The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in

the foundry, the proper construction of core boxes and the various materials from which they may be made. Core mixtures, core making, baking and finishing, receive careful consideration. The subject of core ovens is considered with reference to their form, construction and management. Various types of cupola furnaces are discussed, methods of lining, introduction of the blast, the placing of tapping and slag holes, different forms of tuyeres.

*Forge Work* is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening and annealing.

*Machine Work and Vise Work* are taught in a similarly thorough and careful manner.

*Principles of Mechanism* are studied with reference to the combinations of which machines are composed, and the study of designs for the communication of motion by means of gears, belts, links, etc.; methods of designing parallel motions, quick return motions, and cone pulleys. The adaptation to the formation of gear teeth of the involute, the epicycloid, the logarithmic spiral, and other curves, form an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. In many cases they were constructed by the students from their own designs.

*Strength of Materials* is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns, and other structural pieces, tests are made of chains, ropes, cables, solid bars, and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws, and strength of bricks, stones, marble, etc.

*Machine Design* is taken up for one term, and the students make designs for screws, bolts, nuts, gears, and complete machines, such as arbor presses, drill presses, lathes, engines, etc. In this connection the students make use of class room notes, reference books, and notes and sketches made by themselves from their experimental work and their reading.

*Boilers.*—The various forms are carefully studied from the best authors.

The College possesses four steam boilers, to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples, obtained from different sources, of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings, and a large collection of parts of boilers showing conditions incident to boiler management. Injectors, pumps, condensers, feed-water heaters, and economizers receive special consideration and are thoroughly investigated.

Chimney draft and mechanical draft are studied and compared with regard to their relative efficiencies.

*The Steam Engine* is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests. Careful attention is given to the study of valves by means of the Zeuner diagrams. Compound and condensing engines are studied with reference to steam distribution and the proper proportion of the various parts. The thermodynamics of the steam engine is studied in the Senior year.

There are four steam engines at the College which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These, with what has already been named, form a desirable equipment for the use of the students.

Three of the steam engines are provided with Prony brakes. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was made for the Department, and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

*Machinery and Mill Work* receive attention, and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied. Important engineering developments, as they occur, are discussed in the



class-room in connection with the studies to which they relate.

Students are expected to read the current technical literature, and for their accommodation the College library is well supplied with the best engineering papers and magazines.

The Shops in connection with the Mechanical Engineering Department are places where principles and operations may be more readily laid hold of and permanently acquired, than any bare demonstration of the classroom could accomplish.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

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#### COURSE OF LABOR.

|                              |          |
|------------------------------|----------|
| Bench work in wood.....      | 13 weeks |
| Wood-turning .....           | 13 weeks |
| Pattern-making .....         | 13 weeks |
| Moulding and casting.....    | 13 weeks |
| Iron and steel forging.....  | 13 weeks |
| Machine work in metals ..... | 13 weeks |
| Vise work in metals.....     | 13 weeks |

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#### BENCH WORK IN WOOD.

This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First, the use of planes in joining, smoothing, and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle. Instruction is given in making glued joints, inlaid and scraped surfaces.

Students usually work from drawings. Cases, benches,



boxes, foundry flasks, and a variety of other useful articles are made.

*Machine Work in Wood.*—In connection with this course, with the use of tools, is given the most rapid and economical method of selecting and preparing the wood for the machine. There are given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools, and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five-horse power vertical steam engine complete in all its details, a number of drafting tables, boring bars, gears, vises, bells, and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.

*Pattern-making and Foundry Work.*—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft and the best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There are given examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where moulds and cores are made, and castings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the moulds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass, and other metals and alloys are made for vises, drafting-tables, dynamos, steam engines, engine lathes, and other things needed.

*Forge Work.*—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are

put to a practical use. Lathe, planer, and shaper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers, and all bolts, braces and such other iron and steel work as may be needed.

*Machine Work in Metal.*—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals; centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping, and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work. Every shop exercise is graded and marked in the same manner as a class-room recitation, each piece of work being regarded as of educational value.

*Practical Mechanics.*—For those whose time and means are limited, a short course in practical mechanics is provided. This course covers, practically, the work of the Freshman and Sophomore classes.

The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manufacture salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of *how* a tool or machine should be used, and the *manner of laying out work* for it, are thoroughly taught.

Should circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by his training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical

principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

*Tool-Room System.*—There is a well-arranged tool-room, fitted up with a check system designed to accustom students to order and neatness and the names of the tools in use.

*Theory and Practice.*—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by the most practical application of the same in all ways. In every instance where it is possible the work of the classroom is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.

## CIVIL AND IRRIGATION ENGINEERING.

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L. G. CARPENTER, M. S.,

JAY D. STANNARD, B. S.,

R. E. TRIMBLE, B. S.,

AMOS JONES, B. S.

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*General Statement.*—In the last two years of the College course, special training is given to those students selecting the Civil and Irrigation Engineering Course, in the fundamentals of these professions. Land Surveying with field practice is taught in the Sophomore year. In the Junior and Senior years, while the studies designed for general training are continued, special instruction is given in engineering and in establishing the mathematical basis for such work. More than usual attention is given to hydraulics and to engineering applied to irrigation problems. Training is given in water measurement and in the problems relating to irrigation, so as to furnish the students the foundation for service as canal superintendents, water commissioners, etc.

Field work is carried on throughout the course and considerable time is devoted to giving the student familiarity with all the instruments ordinarily used in engineering. A special set of exercises has been prepared designed to give skill in adjusting and using the instruments. The Department has a good collection of engineering instruments, including transits, compasses, levels, rods, tapes, current meters, sextant, plane-table and various other apparatus. In the Hydraulic Laboratory are tanks and scales for measuring and experimenting on the flow of water over weirs and through orifices of various kinds; current meters of various patterns for stream gaging; water registers for studying the flow of water; water motors, etc. The Laboratory is also provided with a Fairbanks Ce-



ment Tester for testing the strength of cement, and a Testing Machine capable of making tests, transverse, tensile, and compressive, up to a limit of 50,000 pounds.

There is also available, belonging to the Department and to the Professor of Civil Engineering, collections of photographs and plans of engineering and irrigation structures in Colorado and other states of the Union, as well as in Spain, Italy, France, Algeria, Egypt, India, and Australia. In the present condition of Irrigation Engineering these collections are especially useful.

*Irrigation Engineering.*—In addition to the bearing which much of the work has upon this subject, some time is given particularly to the study of canal and reservoir engineering, construction of diversion dams, the duty of water, canal management, flumes and fluming, weirs, problems in canal maintenance, etc. The location of the College in one of the best irrigated valleys in the United States, with its large and well constructed canals and storage reservoirs, gives excellent opportunities for this study. A large number of photographs and plans of irrigation works has been collected and is in constant use.

*The Materials of Engineering.*—One term in the Senior year is given to the theory of the resistance of materials and to the study of the different materials commonly used in engineering construction, including brick, stone, wood, iron, and steel. Exercises with testing machine familiarize students with the peculiarities of these materials.

*Surveying.*—The principles of Land Surveying are taught in the last term of the Sophomore year. While instruction therein is given to the students in all courses, it is intended to cover the ground with such thoroughness that the students in the Civil Engineering Course will not need to traverse the same ground again. The course includes a study of the operations of surveying; the adjustment of the instruments used by the surveyor; surveying with picket, chain, and compass; and leveling. Considerable attention is given to the methods of the Government Surveys, the finding of corners, and platting. Field work is required of each student for six



weeks, two hours daily, in which exercises are given in chaining, measurement of angles with the chain and with the compass, compass surveying, and leveling. Attempt is made to teach the student to be careful and accurate, and to give him the confidence that comes with correct work. The student is required to check his work, and the exercises are so planned that many exercises check the results of others. When possible, a short time is given to a discussion of the measurement of water and the hydraulic laws relating thereto—knowledge useful to every citizen of an irrigated country and expected of every surveyor. A more extended training in this line is given in the later years of the course.

*Higher Surveying.*—One term in the Junior year is given to instruction in higher surveying. This is a continuation of the course in the Sophomore year, which is devoted to land surveying, the compass, and leveling. This is accompanied and supplemented with field work for a large part of both the Junior and Senior years. As the transit is one of the most important instruments for the engineer to be skillful with, nearly all the work of the Junior year is in its use, in acquiring skill in its manipulation, and accuracy in its use. The field work of the Senior year is given to more extended operations, to which the topography of the neighborhood is well adapted. More extended field work, in which each student in the engineering course is expected to spend at least two weeks in field practice in camp, is planned for.

*Reservoirs and Dams.*—In view of the present and prospective importance of storage reservoirs in the West, a course of six weeks is given especially to this subject.

The principles of the construction of dams, both earthen and masonry, and the computation of their stability, are taught; also, the causes of the failures of dams, illustrated with photographs and lantern views of many dams. The large reservoirs located within a few miles of the College give convenient means for practical illustration.

*Agricultural Hydraulics.*—This course, covering one term, is intended to include a general discussion of irrigation, its history, and the conditions rendering it necessary or profitable;

principles of irrigation; laying out of grounds or farms for irrigation, and questions of duty of water, seepage, water rights, canal administration, etc.

The students of the Civil Engineering and Agricultural Courses receive instruction in this subject. The Junior and Senior classes are combined. The work is taken each alternate year.

*Trusses and Bridges.*—The instruction covers the methods of computing the stresses in bridge and roof trusses, the principles involved in the construction of trusses, their erection, designing, etc. Merriman's *Trusses and Bridges* is used as a text-book.

*Meteorology.*—A six weeks' course of lectures is given in the Fall term. This course includes a discussion of the means of taking observations; methods of exposure of instruments and precautions for taking correct observations; the characteristics of climate, especially the features of the climate of Colorado; barometry and thermometry; influence of the various meteorological elements upon agriculture and plant growth; influence upon health; the study of storm movements from the daily weather charts and telegrams; the laws of storms; characteristics and causes of special storms, as chinooks, northers, hailstorms, tornadoes, and cloudbursts. The College and the Meteorological Section of the Experiment Station possess a complete line of meteorological instruments which are in constant use. These include self-recording thermometers, barometers, rain gages, sunshine recorders, psychrometers, anemometers, etc. The records from these instruments—together with the results of the meteorological investigations at the College for the time since the Experiment Station was established—and the daily charts of the Weather Bureau furnish material for illustration and study in connection with the course.

*Physics.*—The study of Physics is begun in the Winter term of the Sophomore year, continued through the remainder of that year, and completed in the Junior year. Laboratory instruction is also given in the afternoons, two hours daily being given for one-half the time during the continuation of

the study. The sciences of Mechanics, Light, Heat, Sound, and Electricity are taken up in succession, nearly a term being given to Mechanics, and another to Electricity. In the laboratory work the intention is to give the student personal acquaintance, in an experimental way, with some of the simpler phenomena discussed in the classroom; to lead him into accuracy in measurement of the various physical quantities, and to give him a realization of the problems and care arising in accurate measurement of physical constants.

The following is a selection from some of the recent laboratory exercises:

Exercises in exact measurement with micrometers and spherometers.

Exercises in weighing.

Investigation of the sensibility of the balance.

Testing of the parallelogram of forces experimentally.

Determination of the acceleration of gravitation by the pendulum.

Investigation of the temperature correction of an aneroid barometer.

Comparison of thermometers with standard; testing boiling and melting points.

Measurement of heights by barometer.

Determination of difference of potential.

Construction of a working telephone.

Exercises in electric wiring.

Measurement of internal resistance of batteries.

Determination of battery E. M. F.

Measurement of wire resistance.

Electro-plating.

Determination of densities.

Measurement of candle-power of sources of light.

Determination of focal strength of lenses and mirrors.

## PHYSIOLOGY, ZOOLOGY, AND ENTOMOLOGY.

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C. P. GILLETTE, M. S.,

E. D. BALL, M. S.,

E. S. G. TITUS, B. S.

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*Physiology.*—This subject is taught during the first and second terms of the Sophomore year, Martin's *Human Body* (unabridged edition) being used as a text-book.

The Department is equipped with a *papier mache* manikin showing the position, size, and shape of the organs of the body; also Auzoux models of the heart, brain, larynx, eye, ear, etc. A series of skeletons, including three human and many of the lower vertebrates serve for the study of comparative anatomy.

During the first six weeks of the Fall term, two hours are spent each afternoon in laboratory work. Two weeks are spent in a study of human and comparative osteology. The student first makes himself familiar with the bones of the human body and then compares the skeleton of man, part by part with the skeletons of other animals. Another two weeks are spent in the study of human histology. Preparations of the tissues of the body are furnished the student who studies them under the microscope until he understands their structure, and then he is required to make drawings showing the parts properly labeled. The last two weeks are spent in dissecting animals that have first been killed by the use of chloroform. In this work the position, size, and appearance of all the more important organs of the body are studied and compared with the corresponding parts in man. In this manner the student obtains a practical knowledge of the anatomy



of man, and at least one of the lower animals that he could not get through a mere study of books.

Microscopes, dissecting tools, and all needed apparatus are furnished the student without expense to him.

*Zoology.*—This study is taken during the second term of the Junior year by all the students of the Agricultural and Ladies' courses. It is taught in two consecutive class periods each day by means of lectures in connection with laboratory work. Typical forms of the animal kingdom are furnished the student who is taught to rely as much as possible on his own powers of observation in the study of the specimens placed before him. As some vertebrate zoology is taught in connection with the physiology, in the Junior year, the instruction is chiefly confined to the invertebrates.

There is a good museum in connection with the Department, in which are classified representatives of the different groups of the animal kingdom to which the student has access at all times on school days. The collection is particularly good in insects, Crustacea, Molusca, Corals, and sponges and there is a good number of native birds and mammals and a classified collection of bird's eggs.

*Entomology.*—The Juniors in the Agricultural and Ladies' courses take Entomology in the third term. Smith's *Economic Entomology* is used as a text-book and two hours a day of laboratory work are required of the young men during the first two-fifths of the term. The student is first taught insect anatomy through the study of a few type-forms and is then instructed in the characters that distinguish the different orders. He is also required to make a classified collection of insects representing, if possible, all the orders.

Special stress is placed upon the economic features of the subject. The student is taught to recognize the beneficial insects and to distinguish them from those that are injurious. As far as the time will permit the species that are injurious to orchard, garden, and farm crops and to domestic animals are considered singly and their habits and the methods of



destroying them are discussed. The students are also taught to prepare and apply the leading insecticides.

As means of illustration and aids in the pursuit of this study, the College has a collection of classified insects numbering more than 50,000, a good library, and all necessary microscopes and laboratory equipment. Those wishing to make a special or advanced study of the subject of Entomology in a general way or along special lines, will be encouraged to do so, and will be given all possible aid.

## CHEMISTRY AND GEOLOGY.

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WM. P. HEADDEN, A. M., Ph. D.,

L. A. TEST, B. M. E., A. C.,

F. C. ALFORD, B. S.,

JOSEPH LOWNES, B. S.

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*Chemistry.*—The prescribed course of study in this subject is taken by the students of all courses. It has been planned to include no more of the science than is advisable for a collegiate course, the object being to present the principles of the science and such facts as are necessary for a reasonably thorough understanding of these principles.

The means employed in giving instruction are recitations, lectures, and laboratory practice. Our aim is to give the student the benefit of the discipline of the recitation system, the illustration of the lecture and the inductive system of the laboratory. The object aimed at is wholly educational and is included in an acquaintance with the scope and character of the science, the necessity of a clear perception of facts and an exact statement of the same; also the importance of neatness and exactness. The latter are obtained by requiring all experiments to be done quantitatively, first requiring the student to calculate the result which should be obtained, and testing his work by the agreement of the actual results with the calculated one.

Laboratory practice is not begun until the student has received sufficient instruction in stoichiometric calculation, and the general properties of acids, bases, and salts, to make him to fully comprehend the simple problems given in illustration of the general principles of Chemistry.

The instruction during the first term covers the general principles of Chemistry and the Chemistry of the not-metals. The Chemistry of the metals is given by lectures. Organic

Chemistry is taken up during the second term and the fatty compounds completed.

Agricultural Chemistry is taught by lectures and the text-book. Johnston's *Agricultural Chemistry*, edited by Professor Aikman, being used as a text. The lectures embrace, particularly, soil chemistry, manures, and fodders.

The laboratory practice is the same for students of all courses up to the completion of the qualitative analysis; from this point on, the work is adapted to the objects the student has in view and to his proficiency. While the student's wishes are considered, the selection of the work is made by the Professor in charge.

No instruction is given in assaying, as this line of work lies without our province and is provided for by other State institutions.

The laboratory is well lighted, heated, and ventilated; it is supplied with all that is necessary for a very extended course in qualitative and quantitative analysis. For fuller description, see Buildings and Equipment.

*Geology.*—Two terms of the Junior year, the Winter and Spring, are devoted to this study. The relation of geology to the soil is more fully discussed in the Spring term of the Senior year in connection with Agricultural Chemistry. Elementary Geology is taken up in the Winter term of the Junior year and systematic Geology in the Spring term.

The illustrative material at our command is fuller than usual and of most excellent grade. Of lithological material, we have about nine hundred specimens of good cabinet size, 3x4 1-2 inches, representing all the important classes of rocks and many of the varieties. This collection of rocks is supplemented by a good working collection of the most important rock-forming minerals, and a small collection of sections serving to show the microscopic structure of the various classes of rocks and the optical properties of their component minerals. Economic Geology is represented by collections of ores, of which those of iron, lead, and silver and copper are representative, and further by a large collection of ornamental materials, marbles, serpentines, and porphyries. This collection consists

of polished specimens. Many of them are large and all of them choice, making a very beautiful and attractive collection. Historical Geology is represented by a collection of seven hundred and fifty fossils and forty casts. These fossils illustrate the life of every geological age and period. Those of the Mesozoic and Cenozoic are, for the greater part, foreign, while those of the Paleozoic are mostly from American localities.

## DOMESTIC SCIENCE.

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THEODOSIA G. AMMONS.

SARAH T. SUTHERLAND.

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The establishment of the Department of Domestic Science in the Colorado Agricultural College was the outgrowth of the conviction that the education of a young woman is no more complete without training in the domestic arts and underlying sciences than is the education of a young man without training in the practical arts of life.

Knowledge is an excellent thing; but knowledge and the acquired skill to apply that knowledge are infinitely better. To know what to do is important; to know the same thing, and in addition to have skill in doing it, is reaching out and taking hold of the best.

Thus committed to the doctrine that true education should include, and in fact does include, culture of the moral and mental powers in connection with the practical training in the industrial arts, the State Board of Agriculture illustrated its theory in the founding of this Department in June, 1894.

The following fall witnessed the opening of the old Horticultural building under a new name with a purpose of making this feature a great success.

The appreciation of this work is manifest in the fact that since its introduction the number of young ladies in the College has more than doubled. Since the majority of young ladies will be home-makers, this subject is of paramount importance. Through this training, that which seemed drudgery is transformed into an attractive, elevating, and very useful art.

The course includes five terms of lectures and class room recitations, as follows:

I. *Hygiene and Sanitation*.—This subject is taken up at the



beginning of the Winter term of the Sophomore year. The text-book used is a collection of *Public Health* essays relating chiefly to the home and school, and are classified in this way:

1. Study of the Home.
  - (a) Selection of location.
  - (b) The building of the home, from foundation to attic, including materials used, the plumbing, heating, lighting, ventilation, etc.
  - (c) The surroundings: lawns, trees, and shrubbery; emphasizing sanitary and hygienic conditions.
  - (d) Furnishing the home for the purposes of convenience, adornment, and the happiness of the inmates.
2. The Use of Disinfectants.
3. Individual Prophylaxis Against Disease.
4. School Hygiene.
5. Foods.
6. Preventable Causes of Disease.

II. *Emergencies, Conversation, etc.*—During the Spring term of the Sophomore year the leading aim is to teach self-reliance, presence of mind, an interest in general subjects, and to train the student to express herself concisely, intelligently, and entertainingly.

The scheme is varied for each day in the week. On Mondays the subjects always relate to the human organism. For instance, the skin is studied under the divisions of Functions and Care. Tuesdays are devoted to emergencies. To illustrate: One subject taken is the Resuscitation of the Apparently Drowned. In all cases of accident a physician should be called, but the attendant may be of great use while the physician is coming. On Wednesday each young woman is required to prepare for the class an item of interest that belongs to the general subject of Home Science. Thursday or Friday is given to written work, an emergency always alternating with the former. The lesson for Friday morning is one of great importance. Some subject for discussion is announced

one week in advance, with a member of the class as leader. For twenty minutes the one in charge presides; then the instructor takes the chair and recapitulates, adding and modifying wherever necessary.

Since the art of conversation has been very much neglected in recent years, the young ladies appreciate this opportunity of giving special attention to so valuable and cultivating a subject, particularly since it is absolutely indispensable in the well-ordered home.

III. *Chemistry of Cooking and Cleaning.*—In the Fall term of the Junior year the subject considered is the Chemistry of Cooking and Cleaning. The practice of cooking can not be carried on successfully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The work of this term tends to lift the veil of mystery from many kinds of housework, and to fill the mind of the student with a broader conception of her sphere as a homemaker. Moreover, the actual performance of the labor is materially lessened when these subjects are properly understood.

IV. *Science of Nutrition.*—During the Winter term of the Junior year the Science of Nutrition is studied with Atwater's *Chemistry and Economy of Food*. Bulletin No. 21, of the Office of Experiment Stations, Washington, D. C., is taken as the basis. Much supplementary reading is required, and the study of dietaries is made an important feature of this division.

V. *Home Nursing.*—At the opening of the Spring term, Weeks's text-book on nursing is placed in the hands of the class, and as thorough investigation and study, as are possible without clinical practice, is carried forward. In all of these lines attention is given to the subject of micro-organisms, as the knowledge of them and their functions is variously related to the matters under consideration.

*Sewing.*—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery and millinery. Everything is done systematically and methodically, and not for a moment is sight lost of the high educational value of this training. Special

instruction is given in dressmaking. Notwithstanding the fact that no student is required to purchase material for sewing, it is invariably done, because in so doing, she is entitled to the product of her labor.

*The Kitchen.*—The work in the kitchen laboratory includes the study of foods, with practice in all kinds of cooking and laundering. How to serve food; the care of the table linen; the arrangement of dining tables for all occasions, and how to make all kinds of food serve their best purpose at the least cost, are among the subjects considered.

*Housekeeping.*—Since the building in which Domestic Science is taught is furnished, as far as possible, as a home would be, actual work in housekeeping is carried on. Sweeping, washing of wood and glass, as well as dusting, form a part of each student's duties.

*General Topics.*—A lecture is given on each Monday afternoon on some topic relating to the care of the house, clothing, or person; social duties; customs of good society, and anything that will aid in the development of a perfect womanhood.

## MATHEMATICS.

E. B. HOUSE, B. S., E. E.,  
R. H. HESS, B. S.

*General Statement.*—The course in Mathematics is full and complete. The different subjects are taken up in logical order as rapidly as the student has fitted himself for them. The courses offered are the following :

Sub-Freshman.—Elementary Algebra,—three terms.

Freshman.—Plane and Solid Gometry,—three terms.

Sophomore.—Algebra,—two terms.

Plane Trigonometry,—one term.

Junior.—College Algebra,—one term.

Analytical Geometry,—one term.

Differential Calculus,—one term.

Senior.—Integral Calculus,—one term.

*Elementary Algebra.*—This subject is pursued during the Sub-Freshman and Sophomore years. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of Arithmetic by the notation of two sorts of quantities directly opposite in character, and the conciseness obtained by the use of literal notation. He is taught the fundamental operations of addition, subtraction, multiplication, and division and also the methods of solving simple equations containing one unknown quantity. Subsequent work during the next two terms acquaints him with factoring, common factors and multiples, fractions, fractional equations, simple simultaneous equations containing two and three unknown quantities, involution, evolution, theory of exponents, radicals, and imaginary expressions. The text-book used is Wentworth's *New School Algebra* and the work in the Sub-Freshman year extends to quad ratic equations. This subject is continued in



the Sophomore year. Two terms of this year are devoted to it. During this time the student finishes the work in Elementary Algebra, taking the entire subject of quadratic equations, ratio and proportion, progressions, properties and series, the bi-nomial theorem, logarithms, and as much more as may be possible in the time allowed. During this year the work as given in Wentworth's *New School Algebra* is finished.

*Geometry.*—This subject is taken up at the beginning of the Freshman year and in the three terms given to this study the student is given a thorough, practical acquaintance with the construction of geometrical figures. He also takes up formal proof and is lead to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience. He is also given thorough practice in the mensuration of geometric magnitudes. So far as time and ability of the student will permit, he is practiced upon original exercises. The year's work covers the whole of Wentworth's *Plane and Solid Geometry*.

*Trigonometry.*—This subject is taken up in the Sophomore year and during a term's work in it the student is advanced through Wentworth's *Plane Trigonometry*. He is given clear ideas of the trigonometrical concepts, shown their relation and given considerable practice in the practical application of this branch of mathematics.

At this point all students in the Agricultural and Ladies' courses discontinue their mathematical studies. From the wide application of mathematics to all branches of engineering, those students electing either of the courses in engineering continue their mathematical studies throughout their entire course except the last two terms in the Senior year.

*Descriptive Geometry.*—This subject is taught to the students of the engineering courses for two terms during their Sophomore year. The principles of projection, intersection, development, etc., are discussed and illustrated by a great variety of problems, all of which are accurately worked out on the draughting-board by each student.

*College Algebra.*—For one term in the Junior year the



student is given a brief review in quadratics and radicals and takes up the algebraic principles known as *Higher Algebra*. Among the subjects considered are, choice and chance, theory of numbers, variables and limits, series, theory of equations, and various methods of solution of equations of the third and higher degrees.

*Analytical Geometry*.—This subject is taught during the Junior year. Wentworth's *Analytics* is the text used, and the student is made acquainted with the method of coordinates and the connection between algebraic and geometric forms. The fundamental properties of conic sections are developed and as much more of the subject as time permits.

*Calculus*.—The last term of the Junior and the first term of the Senior year are devoted to the study of the Differential and Integral Calculus. Taylor's *Differential and Integral Calculus* is the text-book used, and the subject is pursued as there developed. The notation of limits is, however, made the logical basis upon which the subject is developed.

The Department is provided with a set of Schroeder models from Darmstadt, and with models of warped surfaces, etc., for the purpose of illustration in the study of geometry. There is also a set of drawings for the use in the study of curves and curve tracing.

The purpose of instruction in this Department is twofold : first, to give the student clear and exact ideas of magnitude and their measurements; and second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

## RHETORIC AND PHILOSOPHY.

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EDWARD M. TRABER, A. B.

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### RHETORIC.

So long as man communicates his thoughts and feelings to his fellow-men, so long will language have a practical value. The man who speaks in a slipshod, bungling manner, comes far from communicating his thoughts to others. A college man, above all others, must depend upon himself alone for the correctness and the elegance of his speech; for the more valuable is his thought, the greater his need for a clear and effective use of language.

The aim of the following course in Rhetoric and English Composition is, in general, twofold: (1) To train the student in the theory and the practice of English Composition; and (2) by the study of the fundamental principles of style, to aid him in an intelligent appreciation of literature.

COURSE I. *Elementary Rhetoric and Composition*.—This course extends daily throughout the Sub-Freshman year. The classroom work is divided equally between theory and practice. Lockwood's *Lessons in English*, Strang's *Exercises in English*, and Webster's *Academic Dictionary* are the required textbooks. Composition work carefully encouraged, exercises along some written work almost daily. Students are drilled to correct their own mistakes. Before entering upon this course, or upon any later course, students must prove their unquestioned acquaintance with technical English Grammar.

COURSE II. *Rhetoric and Rhetorical Analysis*.—This course follows the *Elementary Rhetoric and Composition* of the Sub-Freshman class, which is a prerequisite. Devoted mainly to

the study of essay structure and the fundamental principles of the different forms of discourse. Analysis of good prose models. The text-books now used as guides are Genung's *Practical Rhetoric* and the same author's *Handbook of Rhetorical Analysis*. The course is given daily throughout the Winter and Spring terms of the Freshman year.

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## PHILOSOPHY.

COURSE I.—*Psychology*.—A course of elements and outlines of Psychology is given the Spring term of the Sophomore year, and it aims to familiarize the student with first psychological principles. Halleck's *Psychology and Psychic Culture* is used as a text-book. The course is supplemented by lectures and simple laboratory work. Five hours.

COURSE II. *Logic*.—This course is elementary, and is given the Winter term of the Junior year. It is presented through recitations, discussions, and many original exercises. The syllogism is especially and minutely worked out. A number of scientific and philosophical arguments, as well as characteristic judgments of immediate perception, are studied. The aim is to bring out in a clear and practical manner both the inductive and the deductive sides of inference, and to point out some of the principles of philosophy that are involved in them. The text-book for 1900-1901 will probably be Creighton's *Introductory Logic*. Five hours.

COURSE III. *Ethics*.—This course is given the Fall term of the Senior year. The work in Ethics bases itself upon the psychological ideas acquired in the previous courses, and applies them to the analysis of character, habit, desires, and ideals from an ethical point of view. Mackenzie's *Manual of Ethics* (third edition) is followed pretty closely as a text-book, supplemented by such work as may be suggested by library work.

*Latin*.—The courses in the Latin language are given for the primary purpose of affording such linguistic knowledge of the language—inflection, derivation, and the meaning of ordinary root words—as is necessary to follow and to appreciate

the Latin element in English, and especially to the sciences so markedly prominent in this institution.

All work in Latin is elective, the choice of the students being at all times along the line of practical utility. Since the establishment of this elective, in 1896, the following courses have been given: (1) Elementary Courses; (2) *Viri Romæ*; (3) Cæsar's *Gallic War*; (4) Cornelius Nepos; (5) Sallust's *Cataline*; (6) Cicero's *Orations*; (7) Ovid's *Metamorphoses* (2,500 verses); (8) Ovid's *Fasti*; (9) Virgil's *Æneid* (first six books); (10) Cicero's *De Senectute* and *De Amicitia*; (11) Livy, Books i., xxi., and xxii.; (12) Terence's *Phormio*; (13) Tacitus's *Germania* and *Agricola*; (14) Plautus's *Captivi*.

Prose work based upon the Latin texts studied is continued throughout the courses. The Roman method of pronunciation is used. For set grammatical work and reference Bennett's *Latin Grammar* is used; and for vocabularies and quantities Lewis's *Elementary Latin Dictionary* is preferred.

## HISTORY, LITERATURE, AND GERMAN.

JENNIE E. McLAIN, B. S.

No education is complete without a thorough knowledge of English literature and history. The aim in this instruction is to lay the foundation for such knowledge by instruction in the methods of study and research, in the use of books, and development of the literary taste.

These subjects are studied throughout the entire course. The student is expected to have completed a preparatory course in United States history. The course in General History begins in the first term of the Freshman year and is continued through the second term.

The work may be outlined as follows :

### SUB-FRESHMAN YEAR.

*Second and Third terms.*—American Literature.

### FRESHMAN YEAR.

*First term.*—Ancient History : Greece and Rome.

*Second term.*—Europe from the Invasion of the Northern Barbarians to the present time.

### SOPHOMORE YEAR.

*First term.*—English Literature. Readings from Chaucer, Spenser, Shakespeare, Elizabethan prose writers, Milton, Bunyan, Dryden, and later writers.

### JUNIOR YEAR.

*Third term.*—Recent History of America, A., L.

### SENIOR YEAR.

*First term.*—English Literature, L.

*Second term.*—Philosophy of History, L.



*Third term.*—Recent History, A., M., C., L.

Afternoons: Readings in History four hours per week in Library.

Sheldon's *General History* is used as a text-book. The student is taught to reason about historical events and is required to consult books of reference.

Kellogg's *English Literature* is the basis for the study of English Literature. Each historic period and the authors of that period are considered together. Class work also includes lectures.

Members of the Ladies' Course engage in a more extended study in English and American Literature.

Each member of the class reads masterpieces from the greatest English writers, makes comparison between them, and studies style with as much care and thoroughness as possible.

The development of literary taste is the aim of this work. The study of the Philosophy of History includes such subjects as historical investigations; laws governing human actions; reciprocal influences of religion, literature, and government; comparisons and criticisms of past civilizations, and the elements found in our present European civilization.

A valuable collection of photographs belongs to this Department and illustrates the architecture of the past and present from ruins, and buildings now in existence.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illustrate ten periods of European History since the Christian Era, and also include seven maps for the study of Ancient History, and excellent maps for studying United States History.

The College Library is an important factor. Its shelves are well filled with standard literature, and with works of special interest and assistance to the student of history.

*German.*—Opportunities for the study of German will be furnished by this Department. Such work will be elemen-

tary or more advanced according to the abilities and needs of students. The elementary work is given along the line of and in connection with Dreyspring's *Cumulative Method*, and consists of easy conversation and composition. The more advanced work takes up masterpieces from Schiller and Goethe in connection with conversation.

## VETERINARY SCIENCE.

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GEORGE H. GLOVER, V. S.

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Nothing is of greater importance to both the farmer and the stockman of the West than a thorough understanding of the diseases of domestic animals, their cure and prevention. There is an annual loss to the State of thousands of dollars and a grievous loss and annoyance to the individual farmer from a lack of information in the practical uses of Veterinary Science.

While the work of the Department is still in a stage of development, it is of supreme importance to the Colorado student. The work taken up includes Anatomy of Domestic Animals, Diseases of Farm Animals, Lameness and Principles of Horse Shoeing, Contagious and Epizootic Diseases (common to the West), and Breeds and Breeding. During the latter part of each term dissections are made and clinics held.

## SOCIOLOGY AND THE CONSTITUTION.

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BARTON O. AYLESWORTH, A. M., LL. D.

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The student needs to understand the Constitution of the United States and to yield to its democratic philosophy before he can become a worthy citizen of the nation; but he needs also to come into touch with all human conditions in all the world before he can truly become a worthy man. This is best achieved in the general science of Sociology and its special branch, Political Economy.

The great problems of state and of trade run back after all for their solution, into the deeper human relationships. To be sure, both teacher and student must constantly bear in mind that these relationships have an ideal perfection, and that the approach to them is evolutionary.

But there is no greater inspiration than to feel that the race is "fated to grow" toward liberty and unity, and that each generation more easily sights the goal than the preceding one.

The modern school of the science of government and sociology is neither radical nor conservative. It simply studies the human unfoldment of its time in the double light of history and the hopes of the race, and is greatly concerned both with psychology and ethics.

In fact, it means to conduct a sympathetic analysis of social conditions, seeking remedy where remedy may be found; prevention where prevention may issue, be it from church or state; seeking patience where both prevention and remedy are remote.

In this course Sociology is made the fundamental science; Political Economy and Government are divisions of the general science. Small and Vincent, Strong, Ely, and Gladden

are used as texts in Sociology, Walker in Political Economy, and Andrews in Constitution. "Current Events" is made prominent in daily recitations. The trend of modern thought is observed daily. Much original writing is required of all the students in this department. Earnest debates often spring spontaneously out of the classroom discussions. The passion for good government and for good citizenship enlarges day by day under such an environment.



## COMMERCIAL COURSE.

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C. J. GILKISON, B. S.,

L. M. TAYLOR, B. S.,

C. G. DWYRE.

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By action of the State Board of Agriculture taken in December, 1895, the College Faculty was instructed to so arrange the curriculum of study as to make adequate provision for a distinct department to be known as "The Commercial Course of the State Agricultural College."

A two years' course was adopted, and so wise was the selection of the studies for it that it has not been deemed necessary to make any material changes in the original curriculum, which is exhibited on pages 24 and 25 of this catalogue.

The aim of the course is to meet the wants of those who are seeking a high grade business education. It trains the student to meet the exacting demands of modern commercial life. The fact is recognized that the market is already overcrowded with young people of limited and imperfect preparation and unable to avail themselves of the opportunities of the business world.

It is not the design of the Commercial Department to educate students for a business life in the shortest possible time, but rather to train them in such manner that they may fill positions of the highest trust. Experience has clearly shown that persons of limited and imperfect training invariably fall into the lowest class of workers; while those who are well trained and educated are sought and liberally paid for their services.

The instruction of this Department articulates so closely with the work of the College that the two harmoniously blend

and unite to give a thoroughly cultural as well as technical training for the higher business pursuits.

Students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advantage of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well furnished museum, the College associations of all kinds, and all the elaborately equipped laboratories are open to students of the department, and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

*Thoroughness.*—One of the most important features of the course is thoroughness. Herein lies the secret to success, lucrative positions, and promotion. Thorough training is absolutely necessary. The student's work is examined critically, and is not credited unless it is up to the required standard.

*Bookkeeping.*—The student is first instructed in the elements and principles of theoretical bookkeeping, both double and single entry, and as soon as he shows that he has a clear understanding of the elementary work, he is promoted to advanced bookkeeping. Here he learns to keep books in various lines of business, including mercantile, both wholesale and retail; and manufacturing. After acquiring sufficient skill in advanced bookkeeping, and passing satisfactory examinations, the student enters actual business practice; is assigned his official desk as a business man, and is furnished with a cash capital and stock of merchandise, according to the business in which he is to engage. He issues and receives every form of business paper, including checks, notes, drafts, orders, receipts, leases, articles of agreement, bills, invoices, statements of accounts, account sales, bills of lading, money orders, C. O. D. sales and purchases, and, in fact, every form and description of business paper in use. He writes and receives letters pertaining to all affairs of the business, and secures a first-class drill in correspondence. He is taught to brief and file every business paper received. His work covers the entire range of

business transactions, from the simplest to the most difficult.

The office department consists of a national bank, a state bank, a wholesale and retail mercantile business, and a commission office; also facilities for a commercial exchange, and is equipped with books, modeled after those used by large concerns, which are kept by the students. The student has from six to twelve weeks' office practice before entering the final examinations.

The average student will complete the bookkeeping in one school year, after which, if capable in other directions, he will be able to do the accounting work required in any business office.

*Shorthand.*—It has been truly said that the practice of shorthand "draws out all the powers of the mind; it incites invention, improves the ingenuity, matures the judgment, and endows the retentive faculty with the superior advantage of precision, vigilance, and perseverance."

To meet the constantly growing popular demand for instruction in this important branch of technical education, and in response to the requirements of those worthy and ambitious young men and women who are desirous of fitting themselves for successful careers in the busy marts of the world's commerce, wise provision has been made whereby they may prepare themselves for positions in which the ability to intelligently record and transcribe their shorthand notes is rewarded by promotion to higher walks and larger spheres of usefulness, requiring a high order of intelligence.

The work is under the direction of a stenographic expert who has been in the active practice of his profession for the past twelve years. The student devotes from two to four hours daily, throughout the school year, to practice under the personal supervision of the instructor in charge. A good English education is an indispensable condition to success in the practical application of shorthand, and applicants who are found to be deficient in any of the branches usually included in a high-school course are advised not to undertake the study. A certificate is awarded those who successfully complete the

examinations in this subject, which include tests in grammar, spelling, punctuation, etc.

The student is afforded every advantage which accrues from attendance upon the lectures of the collegiate courses and association with the various educational influences in which the College so freely abounds. If possible, the student should enter at the commencement of the Fall term in September, in order that he may receive the full benefit of the course. Having become a master of the subject of writing by sound, the student at once enters upon the practical application of phonography to business requirements. A high standard is required for graduation.

The Isaac Pitman system of phonography is taught, although students of other Pitmanic systems may enter the classes and successfully pursue their study and practice without changing systems, and advanced students of other systems may enter the dictation classes for speed practice.

*Typewriting.*—The very best and most ample opportunities are here given for instruction in the successful operation of the typewriter. The Department possesses twenty-two machines of the most improved pattern, and each worker is assigned a typewriter and becomes responsible for the proper care of the same throughout the year. The touch method of fingering is taught, but is not recommended unless the conditions are favorable and the student has the necessary time to give to the subject. The subject of typewriting embraces all the educational qualifications possible to be acquired, and special attention is given to instruction in this art. All manuscripts are corrected daily, and the student is required to persevere until errors are eliminated.

*Expenses.*—Tuition is free. All books and stationery for the two years' course need not cost to exceed \$25. Board and lodging at from \$3 to \$4 per week; club board at reduced rates.

*Advantages.*—1. Free tuition. 2. Text-books and all stationery sold at cost. 3. Each class in charge of a specialist. 4. First-class office equipments for actual business. 5. The large library, museum, College associations and laboratories open to students. 6. Military drill. 7. The students, being

under the direct influence of the College, receive culture and obtain privileges that cannot be equalled by business colleges.

*Requirements for Admission.*—Entrance examinations will be held at the opening of the Fall term. Candidates for admission must be at least fifteen years of age, must show that they have sufficient attainments to enable them to carry on the work, and must pass a satisfactory examination in all branches named in the course for the Sub-Freshman class. Those who are prepared for the work will receive advanced standing.

*Diploma.*—Students who complete the two years' course and sustain the required examinations will receive a diploma.

Students of this Department are subject to the rules and regulations of the College.



## MILITARY DEPARTMENT.

R. A. MAXFIELD, B. S.

The importance of Military training, both to the individual and the State, is so apparent that comment thereon is here unnecessary, further than to say that the physical training and development alone is sufficient proof of its benefits. The growing demand for military instruction in connection with school work, and the fact that the State Agricultural College is the only State institution where such a department exists, has led the authorities to make the work as thorough as practicable.

For instruction the cadets are formed into companies and the companies form a battalion. Each company has a captain, two lieutenants, five sergeants and five corporals. The officers and non-commissioned officers are selected from those in the higher classes showing the most proficiency in the work.

The work in the Fall term embraces the school of the soldier, company, and battalion in close order. Battalion drills are continued at intervals throughout the year. Extended order drill is taken up in the Winter term and continued the Spring term. This includes skirmishes and battle exercises in platoon, company and battalion; advanced guard, rear guard, and outpost duties. Inspections, battalion parades, guard mounting and street parades are occasionally given. Inspections are given at such times as to insure the proper care of the equipment. All military exercises are performed in accordance with the United States Drill Regulations.

Practice in Artillery drill is had during the Spring term. This is instruction in the school of the canoneer, unmounted, and is in accordance with U. S. Artillery Drill Regulations.

The signal corps does practical work in transmitting messages both by means of signal flags and with heliographs.

The systems used are the same as those used in the Government service.

During unfavorable weather theoretical instruction is given, with occasional drills in the manual of arms, which can be executed by the battalion as a whole, within the armory.

The military encampment, held at the close of the school year, affords an excellent opportunity for further instruction in all the duties of the soldier in camp and garrison. To fully carry out this plan in accordance with regulations, the College Battalion has access to the camp and garrison equipage of the State Militia.

The Department is equipped with 250 cadet rifles, belts, cartridge boxes, bayonets and scabbards; two 3-inch, rifled, field pieces; National and Battalion colors; swords for officers; signal flags and heliographs; drums and trumpets for a field band of fourteen members.

## BATTALION ROSTER.

RICHARD A. MAXFIELD, Commandant.

### BATTALION STAFF.

WALTER P. HURLEY, 1st Lieutenant and Adjutant.

OTTO W. LUNNON, Sergeant Major.

RAY E. BAXTER, Chief Trumpeter.

ADOLPH F. LINDON, Color Sergeant.

#### COMPANY A.

*Captain,*  
Clifford S. Atherly.

*1st Lieut.,*  
Stuart B. Garbutt.

*2d Lieut.,*  
Dana Q. McComb,

*1st Sergeant,*  
Henry F. Sturdevant.

*Sergeants,*  
Wm. F. Marshall,  
Roy S. Lumry,  
Rolland N. Bonnett.

*Corporals,*  
Joseph N. Ostrander,  
Joe Lindsay, Jr.,  
Austin Downey,  
Ernest N. Graves,  
John Wilson.

#### COMPANY B.

*Captain,*  
Robert A. Pierce.

*1st Lieut.,*  
Emmet C. McAnelly.

*2d Lieut.,*  
Harry H. Murray.

*1st Sergeant,*  
James H. Andrews.

*Sergeants,*  
Leroy A. Baker,  
Antoine Jacob,  
Waddy Tanner.

*Corporals,*  
Irwin W. Veazey,  
Oliver P. Pennock,  
Frederick N. Langridge,  
James N. Clark.

#### COMPANY C.

*Captain,*  
Earl Douglass.

*1st Lieut.,*  
Oliver B. Tomlin.

*2d Lieut.,*  
E. A. Sutton.

*1st Sergeant,*  
Glynn B. Stannard.

*Sergeants,*  
Ralph W. Haynes,  
Thomas M. Donelson,  
Ray E. McClave,  
Charles C. Durkee.

*Corporals,*  
Harry H. Gaume,  
Ross D. Howard,  
Ned V. Tanner,  
Barton G. Bishopp,  
Tom Metcalfe.

### TRUMPETERS.

Lewis Martin,

Bernard Hensel,

Jay L. Cain.

### DRUM CORPS.

Cyrus E. McComb, *Chief Musician.*

Sidney G. Arscott,  
Charles L. Murray,

Charles W. Kelly,  
Ezra Baer,

Ralph McCreery,  
Fred Stearley,  
Thomas Jones.

## THE AGRICULTURAL EXPERIMENT STATION.

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L. G. CARPENTER, M. S. *Director.*

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The Agricultural Experiment Station is a Department of the College. It receives \$15,000 per annum from Congress for the expenses incurred in conducting original investigations in agricultural science and disseminating the results of such investigations. The scientists engaged in the Station work are also on the teaching staff of the College and the results of their investigations are available for use in the classroom as well as in bulletins.

The investigations of the Station are made principally at the Main Station at Fort Collins, where the equipment is located; but in case the necessities of an investigation or the urgent needs of any part of the State are helped by entering on observations elsewhere, this is done as far as the time and funds permit. Thus the Station has for years given systematic attention to the growth of sugar-beets in all parts of the State and in co-operation with the Department of Agriculture, at Washington, D. C., has distributed seed and made analyses which have given the knowledge for the establishment of factories; it has carried on co-operative experiments, with the aid of many, on irrigation questions; has made hundreds of miles of seepage determinations in different parts of the State; co-operated in experiments on fruit pests, etc. Besides these investigations, which go where the conditions of the investigation require, there are two substations, one located in the vicinity of Rocky Ford and one near Cheyenne Wells, on the Great Plains. Each of these is an outlying portion of the Main Station, with a Superintendent. In the future the

work will not be confined exclusively to the grounds of the substations.

The publications of the Station are sent without charge to those desiring them. They are divided into four classes.

1. *Bulletins*.—Over fifty are already published on various topics of agricultural interest. These are distributed, so far as the editions permit, to those interested in Colorado agriculture. Those published comprise bulletins on irrigation matters, alfalfa, sugar-beets, barley and other field crops, cattle and sheep feeding, strawberries, small fruits and other garden crops, insects, etc. Lists of those printed can be supplied. Of those already printed, only the later numbers can be furnished. The bulletins are, as far as possible, supplied to those desiring them.

2. *Annual Reports*.—These are largely administrative and technical. They are not prepared for general distribution and hence issued in small editions.

3. *Press Bulletins*.—Shorter statements of experience in various lines, or information needing immediate distribution. Sent to papers and to special lists of individuals, according to the subject matter. A recent series and issued as need arises.

4. *River Press Bulletins*.—These are weekly reports issued during the irrigation season, rendering information on the current water supply of the Cache a la Poudre river, obtained in pursuance of other investigations, available to the public. Issued in small numbers, sent to newspapers of Northern Colorado and to interested individuals.

Many bulletins are out of print. Copies are desired to complete sets for libraries. Any friends having numbers prior to number 30 or copies of numbers 32, 37, 42 and 46 which they are willing to spare, will do a favor by sending them to the Experiment Station.

For publications of the Station or correspondence, address The Director of the Experiment Station, Fort Collins, Colorado.



## BUILDINGS AND EQUIPMENTS.

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*Main College Building.*—College Hall, with its new addition, contains large recitation rooms for the following-named departments: Mathematics; English and Philosophy; History, Literature, and German; Latin and Greek; Political Economy and Logic; and Zoology and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoological Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 300 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory 40x72 feet, for drill and gymnastic purposes; the heating plant; office of *The Rocky Mountain Collegian*; special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

*The New Chemical Laboratory.*—This building is designed after the French Renaissance style of architecture, with the individual grace and picturesque effect of the old French chateaux. It appears in pleasing contrast with the Romanesque structures in the midst of which it is erected. It is constructed of red sandstone rubbed and smoothed. In the interior arrangement, convenience and facility for carrying on efficient chemical analysis are kept in mind.

To the left of the main loggia, on the first floor, is the professor's suite of rooms, including office, balance room, and private laboratory—the latter being provided with hoods and direct communication with a storage room in the basement.

To the right the stairway leads to an entrance to the second floor. Directly in front of the main entrance is the qualitative laboratory, 30x38 feet, supplied with working

desks large enough to accommodate thirty-two students. The room is provided with nine hoods, storage room, and balance room. This room, being an inside room, is lighted by a large sky-light in the roof—a superior system of lighting when the work to be done is considered.

To the left of this laboratory, and behind the professor's rooms, is the quantitative laboratory arranged to accommodate twelve students. It is furnished with six laboratory desks, two hoods, and a balance room.

All laboratory desks throughout the building are made of quarter-sawed oak tops and butternut sides, drawers, etc. The sinks are placed at the sides of the laboratories. Each desk is provided with gas and water supplies; also a two-inch waste, flush with the top of the desk; this waste takes the place of sinks in the desk and eliminates much uncleanness usually connected with the work. The hoods are furnished with gas and water supplies; also with strong draft accelerated by steam coils placed in the large vent stacks.

The second floor of the building is arranged into two lecture rooms, each about 26x46 feet. The chemistry lecture room is connected with the apparatus room by a large hood, provided with slides on both sides, making the transfer of apparatus rapid and convenient. There is connection, also, with the museum and chemical cabinet. The geology lecture room is connected with microscopical room and the museum. The basement is used principally for storage and heating purposes, gas generation, and some analytical work.

The Experiment Station occupies the western section of the first floor. It consists of a room for the assistants, a large work room, store room, balance room, and a small room for nitrogen determinations.

*Horticultural Hall.*—The new Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52x64 feet. It is basement, two stories, and attic in height. The basement, which is composed of Pleasant Valley red sandstone, stands

high above grade line and gives excellent rooms for grafting, experimental work, and the storing of implements. The first story of the building has a ceiling height of fourteen feet and is planned to contain one large lecture-room, office, assistant's office, herbarium, and other small rooms for experimental work. The second floor is arranged for a large museum, with octagon ceiling; also private laboratories, as well as plant, seed, and apparatus rooms. The attic is floored and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick, trimmed with Pleasant Valley red sandstone rubbed to a smooth finish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this Department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated throughout by the best improved system of hot water. The rooms are thoroughly ventilated by modern means, and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

*Greenhouses and Forcinghouse.*—The new greenhouse recently completed is one wing of a plan which contemplates the addition, at some future time, of a palm-house, and a second wing similar to the one built. Its construction is such that the other parts can be added at any time.

The structure is 25x50 feet and consists of a wrought iron frame securely bolted to cast sills which cap, and are supported by, brick walls rising from a stone foundation. The frame carries the heating pipes and also the shafting from the self-locking ventilating machines. The glazing strips are of clear Gulf cypress, fitted to special castings at either end, and firmly

fastened to iron purlins. The house is provided with non-freezing gutters and is glazed with the best greenhouse glass. The benches are of iron, with porous tile bottoms and cypress sides. Two lines of sash at the sides and two at the ridge are connected with geared machines which give perfect control over ventilation.

The frame of the house possesses strength, and at the same time offers little obstruction to light. In plan and details the structure is modern; embracing the best that is known in greenhouse construction. It was purchased of the Lord & Burnham Company, of New York City.

In addition to this greenhouse there has been added a forcing-house, 20x50 feet, made of cypress frame resting upon brick walls, and a glass connection between the forcing-house and the laboratory, which is 14x14 feet. In this latter house the sides are carried perpendicular to the height of nine feet, affording space for tall plants.

*Orchards and Grounds.*—The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds, and cold-frames.

*Agricultural Hall.*—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for an agricultural museum. The first floor is divided into a hallway and four large comfortable rooms. Here are found the office of the Professor of Agriculture, churning room, dairy laboratory and seed room. The basement has four apartments which are used for heating apparatus and storage.

*Farm and Stock.*—The farm contains 240 acres, nearly all under cultivation.

The live stock consists of Clydesdale grade draft horses, Shorthorn and Jersey cattle, Shropshire sheep, and Berkshire hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will permit.

*Mechanical Engineering Building.*—This building includes



two large main portions, two stories high, and an ell, one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in charge. The tool room is at the middle of the south side of the room, it is supplied with a good assortment of small tools, such as taps, dies, reamers, gages and milling machine cutters. The tools for cutting, threading and fitting iron pipe are also kept in this room. These tools will handle pipe from one-quarter inch up to two inches. Taps are provided for each size of pipe.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, two 17 inch engine lathes, two 14-inch engine lathes, one 13 inch engine lathe, one speed lathe, one 20 inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, a universal tool and cutter grinder, a twist drill grinding machine, an emery stand, carrying two wheels 16 inches in diameter, a 36-inch grindstone, a 10-inch sensitive drilling machine, and one power metal saw.

An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting.

At the west end of this story is a well-lighted classroom used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the building is devoted to bench and machine work in wood. There are 37 benches, each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, eight wood-turning lathes, a 16-inch patternmaker's



lathe with compound rest, a wood trimmer, a 36-inch grindstone, and a good supply of clamps.

In the lower story of the east main portion of the building is the engine room containing the 50-horsepower Corliss engine which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gage tester affords a means of correcting steam gages.

Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room, which occupies the upper part of this building, has accommodations for fifty students. In the ell portion of the building are found iron store-room, blacksmith shop, and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are 25 forges, all attached to a system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks, and skimmers. Most of the equipment for this room, including the cupola and brass furnace, was made by the students.

*Mechanical Engineering Laboratory.*—The building is situated directly south of the present Mechanical Engineering Building, and is known as the Mechanical Engineering Laboratory. It is 40 feet wide and 60 feet long, and built of pressed brick.

The object of the work of the Laboratory is to give the advanced students an opportunity to make investigations of the physical properties of materials of construction entering into buildings, machinery, and other structures; and also to make tests and examinations of different kinds of boilers,

engines, motors, pumps, and all kinds of mechanical appliances which may be obtained for the use of the department. A number of pieces of apparatus have been given by generous parties for carrying on this work.

As a great deal of the work of investigation is along the line of steam engineering, a new 80-horse power boiler is placed in the Laboratory in order to have the steam needed close at hand. The boiler is so arranged as to allow of its being subjected to regular commercial and scientific tests, and students are instructed how to find the horsepower, how to test for strength, how to test the quality and quantity of the steam furnished by the boiler and to obtain its efficiency.

To test the quality steam, that is, to find out the amount of moisture in it, there are on hand four different styles of calorimeters, a Carpenter throttling calorimeter, a Carpenter continuous calorimeter, and a Barrus calorimeter. There is also a calorimeter devised and made by the students. In connection with these calorimeters, there are thirteen thermometers of a high degree of accuracy. These are cylindrical bulb thermometers. There are also several high-grade steam pipe thermometers, thermometers designed to get the temperature of steam flowing through pipes.

A draft gage is also provided for measuring the draft of the smoke stack in connection with the boiler trials. Provision is also made to secure samples of the chimney gases for chemical analysis, in order to assist in ascertaining the thoroughness of combustion of the fuel. The temperature of the gases may also be taken with a suitable instrument which is provided. Several mercurial pressure and vacuum columns are provided. All instruments are carefully calibrated before tests are made with them.

A large water tank and weighing scales are provided, so that the amount of water used and turned into steam may be ascertained while the trial is being made. Three steam engines are in the building. One is of 12-horse power, made by the Denver Engineering Company; one of 6-horse power, another of 5-horse power; the latter was made by the students. These engines may be run with different loads and at different

speeds. Upon these engines brakes are placed, so that a load on the engine may be accurately measured. The students are instructed how to set eccentrics and valves, and how to ascertain the horse power of the engine. For this latter purpose there are on hand two Crosby steam engine indicators, with five springs each, for varying pressures of steam. Brumbo pulleys are ready for use with the indicators and are used to make the stroke of the indicators proportionate to the stroke of the engine. There is also a reductor at hand, for the same purpose, made by Schaeffer & Budenburg, New York.

A United States Observatory barometer, made by Henry J. Green, of Brooklyn, is in the building, to be used in connection with the boiler, engine, and pressure tests of various kinds. The airbrake appliance, made by the Westinghouse Airbrake Company, is in this building. It consists of a complete outfit for engine, tender and one car, including all the tanks, valves, and engineer's triple valve. Besides using this for the purpose of investigation, the air pump attached is used to furnish air to other kinds of pneumatic machinery. There is also a quick action triple valve, made by the New York Airbrake Company.

There are micrometers and verniers ready for use, which will measure in thousandths of an inch. An ingenious water meter registers the number of gallons of water passing through a pipe in a given time. This is used in connection with the hydraulic work. The planimeter is used for measuring the area of diagrams drawn upon paper, and is used in connection with the figuring out of test diagrams of various kinds. It is of the Amsler design. Revolution counters are used in connection with the engine and motor tests.

There are two steam pumps in this laboratory, one made by George F. Blake, of New York, the other by M. F. Davidson, of Brooklyn, N. Y. The setting of valves and the testing of the efficiency of these pumps are features of the work. Nine steam gages have been presented by different makers, which give a good variety upon which to make investigations. For testing gages, two first-class machines are ready; one for testing pressure gages, the other for testing vacuum gages.

Two sizes of the Hancock inspirator furnish means of studying this highly interesting instrument. Tables are arranged at convenient intervals in the room at which the students are first required to make their theoretical and mathematical calculations, and afterwards compare the practical results of the tests with these calculations. Tabulated results of all tests are made upon blanks of suitable form.

*Civil and Irrigation Engineering.*—The building formerly known as the Dormitory has been remodeled and fitted up for the use of the Department of Civil and Irrigation Engineering.

The main classroom is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A room on the second floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On the first floor are the offices, and the room for carrying on the work of the Section in the Experiment Station. The office of the Director of the Experiment Station is also in this building. There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor, to lessen injurious vibration, is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000 pounds, for testing the flow of water through orifices and over weirs. Here also is placed a Pelton water motor and the cement-testing instrument, together with other equipment, pipes, pressure gages, etc., for experimentation. The experiments on measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working



equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances; spherometers; gages; gyroscope; air-pump and accessories; thermometers; mirrors and lenses, projecting lantern; electrical machines; dynamo; batteries; standard B. A. ohm; Queen 100,000 ohm resistance coil; astatic, sine, tangent, and d'Arsonval and other galvanometers; Edelmann ohmmeter; quadrant; electrometers; voltmeters; telephones; standard cells; a complete set of standard units; and much minor equipment.

For use in Engineering and Hydraulics, it has Colorado, Lallie, Price, Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube; registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gages; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water-motor, presented to the Department by the Pelton Water Wheel Co., a water meter presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments, it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and several Buff and Berger transits; six levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; integrator; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement-tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing-machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of



them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

*Domestic Science.*—The Department of Domestic Science occupies a building which is fitted up for a home. On the lower floor is a large kitchen 25x34 feet in size. It is well lighted and contains furniture and classroom utensils so that a large class can be accommodated. Adjoining this room is a smaller kitchen which is very convenient for extra work, or for use on occasions of entertaining, since it opens into the dining room. This latter room is used only for the smaller functions and special demonstrations in table setting, sewing, etc.

At the end of the hall is situated the laundry which is furnished with porcelain-lined stationary wash-tubs, laundry stove and tank, cupboard, ironing-boards, etc. The other room on this floor is a storeroom.

On the second floor, to the right on entering the hall, is a reception room, suitably furnished. Back of this is a bedroom which is designed to be a model room. Another room opens to the right at the lower end of the hall. This contains two apartments, conveniently equipped with bath-room appliances. These rooms are for the use of such young women in the College as may desire to use them. Situated as they are, immediately over the laundry, there is no difficulty in heating the water.

The classroom, also 25x34 feet, is located on the south side of the building immediately over the kitchen. It is furnished with sewing machines, tables and large cases. The latter are used as receptacles for work and an individual compartment is supplied each student.

This same room serves additional purposes. Sometimes it is a reception room, at other times a dining-room; as the same tables are used for cutting, sewing, and dining. The Chinaware is also kept in this room in nicely arranged closets. From the rear of the classroom one enters the fitting room, which, in addition to general furniture, contains a large

closet where garments in process of making, materials, etc., can be protected.

The accommodations and appliances are ample for classroom and laboratory work in everything connected with household management.

*Military Science and Tactics.*—This department has two hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice, and artillery firing.

*Scientific and Technical Apparatus.*—All departments of science have elaborate, modern, and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy, and entomology is done with the aid of apparatus representing a cost of \$25,000.

The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over \$24,000.

## LIBRARY.

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MARGUERITE E. STRATTON, B. S.

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The Collage Library was founded in 1878 by donations from members of the Faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax. From this small beginning it has steadily grown in size. It contains at present 11,000 bound volumes, besides many thousand pamphlets.

The Library is supported by appropriations made from the "College" and "Annie Jones" funds. The Faculty Committee on Library is wisely directing the expenditure of this appropriation.

All the books have been selected with great care. The Library contains choice and valuable works on Agriculture, Irrigation, principally by English, French, and Italian authors; Mathematics; Physics; Chemistry; Geology; Botany and Horticulture; Physiology; Zoology and Entomology; Mechanics and Engineering; Political Economy; Domestic Science; Science of Education; Military Science; General History; English and American Literature; Music and Art; Translations of the Classics; Biography; Travels; etc.

Seventy-five periodicals, monthly and weekly, are taken by subscription. The publishers of many Colorado newspapers place the College Library on their *free* mailing list.

The Library is well lighted, and, except during the noon hour, the students have the privilege of studying there from 8 A. M. to 5 P. M. on school days, and from 8:30 A. M. to 4 P. M. on Saturdays. The Library is not open on Sundays.

Books may be drawn for a period of two weeks. The Library is catalogued according to the Dewey Decimal

System, the author, title, and subject cards being arranged on the dictionary plan, in convenient cabinets, to which the students have free access.

The private library of the President has been placed in the Main Building of the College, and is open to the use of advanced students. In modern literature it is probably the strongest private library in the State.

## COLLEGE ORGANIZATIONS.

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### LITERARY SOCIETIES.

There are three Literary Societies connected with the College—the “Philo-Æsthesian,” “Columbian,” and the “Athenæum.” Meetings are held weekly throughout the school year. Students are admitted to these societies by vote of the members. The fees and dues are not burdensome.

“The Philo-Æsthesian Society” meets in the College Chapel. “The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech.”

“The Columbian Literary Society” meets in Horticultural Hall. “This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge.”

“The Athenæum Literary Society” meets in the lecture room in the Civil Engineering Building. Its purpose is, “to advance the literary culture of its members, give them proficiency in debate, and train them in parliamentary law.”

Nowhere does the Literary Society stand for more than in the Agricultural College. It forms an important part of college life and helps to put into concrete form the investigations of the classroom.

The exercises of the forum and the reading table give the student a wider horizon, a widening consciousness of his own powers, and an ease in both conversation and public address.

The College takes unusual pride in the zest and finely tempered rivalry of these societies, regarding them as important co-workers in the upbuilding of the school.

### ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to



encourage the study and practice of oratory in the College. Students registered in any of the four higher classes may be admitted to membership by vote of the Association.

The Association holds two contests each year; one for the members of the Sophomore and Freshman classes, the other for the members of the Senior and Junior classes.

Two medals are awarded each year; one of gold to the successful orator in the Senior-Junior contest, and one of silver to the Sophomore-Freshman orator taking first rank.

The orations are passed upon by two sets of judges; one on thought and composition and the other on delivery.

Next to Commencement week College zeal tides highest at this mid-year contest.

#### NATURAL SCIENCE CLUB.

This Club was organized by the members of the Faculty and students of the College in March, 1889. The object of the organization is to keep its members informed upon recent advances in science, and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

#### Y. M. AND Y. W. C. A.

This non-sectarian religious movement has had a providential growth in the colleges of the world.

The student mind has long been wearied by the endless discussions of creeds and the effort to dogmatize every being and every principle in the universe. But no mind turns so eagerly to devotion of a rational quality and to a life of humanitarian service, as does the mind of the modern student. Witness the course of college movements for the betterment of society and the intense interest manifested by students in sociological problems.

The student's pulse beats fast beneath any heavenly vision that calls him to a wider knowledge and to a nobler appreciation of human worth. Every phase of modern science and philosophy tends to make him reverent and helpful to his fellows.

These two Christian Associations, one for young men

and the other for young women, have come into college life for the two-fold purpose of enriching the faith of the individual student and unifying the student body for clean living, a tolerant bearing toward all conditions of life, and the making of a home feeling in the heart of the young man or young woman away from home the first time.

Special emphasis is laid upon unbiased Bible study in groups or circles.

The college authorities are planning to give these organizations a permanent home place in one of the College buildings.

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#### SAN JUAN BOARDING CLUB.

A student boarding club was organized a few years ago. Accommodations for about forty students are furnished. The price of board ranges from \$2.00 to \$2.25 per week. The Club is officered by students under the supervision of the Faculty. The amount and quality of food furnished is regulated by the vote of the members of the Club.

#### ATHLETIC ASSOCIATION.

The object is to promote the physical well-being of the members and to afford such gymnasium and field practice in athletic games as will enable the chosen representatives to participate with credit in intercollegiate contests.

It is the opinion of the Faculty that whatever excesses there may be in college athletics may best be held in check by sympathetic rather than repressive government.

There are two members of the Faculty on the Board of Directors whose business it is to direct, not to discourage, athletic achievements at home and with other colleges.

The college athlete of to-day is neither a coward nor a durlard; he is both manly and studious.

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#### COLLEGE PAPER.

In December, 1891, the first number of *The Rocky Mountain Collegian* appeared. Since that date the paper has appeared regularly once a month during the college year. The columns

of the *Collegian* are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official and patron of the College.

## GENERAL INFORMATION.

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*Admission.*—Students are admitted to the College according to the following statute: "No student shall be admitted to the institution who is not fifteen years of age and who does not pass a satisfactory examination in arithmetic, geography, grammar, reading, spelling, and penmanship."

From the above it will be seen that it would be contrary both to the letter and the spirit of the law to longer maintain the "Preparatory year," which practically covered the work of the eighth grade.

Therefore, pupils who have completed the eighth grade will be admitted to the Sub-Freshman year upon satisfying the Committee on Examinations, or certified grades, or both.

The requirements for admission to the Sub-Freshman class are those required for entrance to the best high schools.

Candidates for Freshman class standing must show a scholarship fully equivalent to that of one fitted to enter upon the work of the tenth grade of the public schools or the second year grade of the best high schools.

Candidates for advanced classes or work will be admitted by examination, or certified standing from schools having an equivalent grade of work, or both.

Applicants appearing late in the college year will be required to pass, in addition to the entrance examination, a further examination in the work already passed over by the class they desire to enter.

Students of advanced age who desire to enter the Sub-Freshman class, but must be conditioned temporarily upon one or two studies, will be taught in these conditioned studies by competent teachers until the condition is passed off.

*Regular and Special Courses.*—Unless there are strong and

excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well-qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or otherwise, at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular courses.

*Registration.*—The first two days of the college year are devoted to examination and registration. New students will be met at the trains by Committees of young men and women from the Y. M. and Y. W. C. A., who will take them to the College at once for registration, and will then assist them to find good homes and open for them the doors of college life.

*Grades.*—In September, 1899, the passing grade was raised from 65 per cent. to 70 per cent. All students who fail to make a standing of 55 per cent. shall be considered "failed," and shall be required to take the subject over again in class. Those making a standing of more than 55 per cent. and less than 70 per cent. shall be considered as "conditioned" and shall be allowed *one special examination* before the subject is again taught by which they may try for a passing grade of 70. In cases of a study extending over two or more terms the student, if he has made an average of 55 per cent., may be allowed to continue with his class but must finally make a grade of 70 per cent. in *one special examination* in each term. If he falls below 55 per cent. in average at the end of a term he will be dropped from the class and be required to take a lower subject.

Students who, by reason of protracted sickness, shall be absent for as much as two-fifths of the term shall be entitled to a special examination on the work done during the time of their absence.

All recitations missed, whether the absence be excused or



not, shall be made up at the earliest convenience of the Professor in charge. All unexcused absences shall count as zero (0).

Any student who shall have a term standing of 90 per cent may be exempted from examinations and his term standing shall be his term average.

*Discipline.*—There are no printed rules. Students are expected to deport themselves as ladies and gentlemen.

While classroom standing is the supreme test of the student's character, the Faculty takes a personal interest in each student, seeking for his highest discipline, physically and morally, as well as mentally.

The moral tone of the College is so high that any one transgressing the commonly accepted laws of good behavior finds himself an outcast among the students unless reformation is prompt and permanent.

*Athletics.*—The faculty believes in a sympathetic government of athletics. Manly conduct is demanded in sports as well as elsewhere in college life. A certain high grade of proficiency in the classroom is required for recognition in athletics.

*Leaving College.*—Temporary leave of absence from the College must be obtained from the President. Final separation from College must be acted upon by the Faculty.

*Labor.*—Labor, two hours each school day, is required of all students not excused for physical disability. This labor, (see Course of Study) is performed on the farm, or in the garden, in the shops and laboratories, in field work, in irrigation, and in surveying and engineering.

*Degrees.*—Upon those who complete the work of any of the four courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

Students who complete the Commercial course will receive a diploma.

On those who already have the degree of Bachelor of Science the degree of Master of Science will be conferred on the completion of a course of study which has been accepted by and been under the direction of the Faculty. The course must extend through at least a year and should

include one major and two minor lines of work. The course of work should be accepted as early as October. The subject of the thesis presented should be selected by December, and the thesis itself, which should show power of independent investigation, presented by May 1st, preceding commencement.

The degree of Civil or Mechanical Engineer will be conferred on similar conditions and for a similar amount of technical work, which must also show the possession of experience on the part of the applicant.

*Expenses.*—All College fees were abolished in January, 1891. TUITION IN ALL THE REGULAR AND SPECIAL CLASSES OF THE COLLEGE IS FREE. There is no charge of any kind for material used in the laboratory work or for books taken from the College Library.

A boarding club, the membership being about forty, has been organized and is managed by the students. The management of this club is so successful and economical, that it suggests the desirability of other organizations of the same character. In this manner board may be obtained at \$2.25 per week. Well furnished rooms, lighted, heated, and cared for, may be had at 75 cents per week.

Students can secure lodging and board in excellent private families at from \$3.25 to \$4.00 per week.

The College authorities are gratified to be able to announce that many of the best homes of Fort Collins are thus opened to students at reasonable rates. No one can estimate the influence of home life thus afforded the young student who is away from home for the first time.

To those who desire to board themselves ample and reasonable opportunities are afforded.

The College is an employer of student labor to a limited extent. In the year just closed our students received \$875.00 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.

Fort Collins is a temperance town absolutely free from

the evils that so often beset students with alluring temptations.

Its church privileges are many and of the most refining and helpful quality. While students are not required to report church attendance they are encouraged to cultivate the religious side of their natures. An afternoon service is held at the College every Sunday.

*Drill and Physical Culture.*—All male students are required to procure a uniform immediately after registration; costing about \$12.00, and to drill forty minutes each school day. This, of itself, is a training in physical bearing and a discipline leading to promptness and obedience. The ladies have a daily drill in physical culture. Opportunities are afforded during the year for a public exhibition of physical culture.

The end in view in establishing the Agricultural College was to train the heart, the head, and the hand—the trinity of the new education. To make practical men and women for the work world, in field, shop, office, and home; to make energetic, patriotic citizens; through its Faculty and students to develop the best resources of this great commonwealth.

# **REGISTER OF STUDENTS**

**AND**

**GRADUATES.**

## STUDENTS.

1899-1900.\*



### POST GRADUATES.

Lee Raymond Cooke, B. S., 1899....Rocky Ford, Colorado  
Howard Empfield Emigh, B. S., 1899.....  
.....Fort Collins, Colorado  
Raymond Ranney Fisk, B. S., 1899..Fort Collins, Colorado  
William Ralston Headden, B. S., 1899.Fort Collins, Colorado  
Marguerite Prendergast, B. S., 1899..Fort Collins, Colorado  
George Augustus Smith, B. S., 1899.....Snyder, Colorado  
Thomas Jefferson Warren, B. S., 1898.....  
.....Fort Collins, Colorado

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### SENIOR CLASS.

Abbie Carleton Alford.....Fort Collins, Colorado  
Laura Armstrong.....Fort Collins, Colorado  
Clifford Spencer Atherly.....Fort Collins, Colorado  
Aaron Vanderburg Benson.....Loveland, Colorado  
Rolland Newton Bonnett.....Fort Collins, Colorado  
Harry Alexander Boyd.....Denver, Colorado  
Clara Mary Cunningham.....Fort Collins, Colorado  
Thomas McMurtie Donelson .....Coulter, Colorado  
Earl Douglass.....Fort Collins, Colorado  
Nellie May Drake.....Fort Collins, Colorado  
Stuart Bennett Garbutt.....Fort Collins, Colorado  
Walter Patrick Hurley.....Denver, Colorado  
Adolph Frederick Lindon.....Bryant, Colorado  
Otto Wesley Lunnon.....Fort Collins, Colorado  
Roy Sylvenes Lumry.....Fort Collins, Colorado

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\* This record is made prior to the close of the spring term. The result of the term's work may change the classification somewhat.



|                               |                             |
|-------------------------------|-----------------------------|
| William Fleming Marshall..    | Wormit, by Dundee, Scotland |
| Ray Ernest McClave.....       | Platteville, Colorado       |
| Emmet Cleburn McAnelly.....   | Fort Collins, Colorado      |
| Dana Quick McComb.....        | Laveta, Colorado            |
| Harry Hammond Murray.....     | Fort Collins, Colorado      |
| Thorwald Vifold Norgaard..... | Gypsum, Colorado            |
| Elizabeth Ann Nugent.....     | Laporte, Colorado           |
| Robert Ansel Pierce.....      | Fort Collins, Colorado      |
| Evell Etta Richardson.....    | New Windsor, Colorado       |
| Ethel Maud Smith.....         | Fort Collins, Colorado      |
| Edwin Aaron Sutton.....       | Breckenridge, Colorado      |
| Pauline Welles Taft.....      | Laporte, Colorado           |
| Oliver Baker Tomlin.....      | Fort Collins, Colorado      |
| Frances May Warren.....       | Laporte, Colorado           |
| Anna Martha Wood.....         | Eaton, Colorado             |

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## JUNIOR CLASS.

|                               |                            |
|-------------------------------|----------------------------|
| James Henderson Andrews.....  | Fort Collins, Colorado     |
| Leroy Arnold Baker.....       | Fort Collins, Colorado     |
| Barton Glen Dale Bishopp..... | Virginia Dale, Colorado    |
| Luther Duham Cowan.....       | Lasalle, Colorado          |
| Charles Catlin Durkee.....    | Colorado Springs, Colorado |
| Howard Joshua Faulkner.....   | Fort Collins, Colorado     |
| Herbert Preston Galliher..... | Hotchkiss, Colorado        |
| Lenore Gunn.....              | Timnath, Colorado          |
| Ralph Walter Haynes.....      | Fort Lupton, Colorado      |
| Clifford House.....           | Cheyenne, Wyoming          |
| Ross Dalby Howard.....        | Fort Collins, Colorado     |
| Royal Sheffler Howlett.....   | Trinidad, Colorado         |
| Antoine Jacob.....            | Conejos, Colorado          |
| Cyrus Earle McComb.....       | Laveta, Colorado           |
| Thomas William Metcalf.....   | Fort Collins, Colorado     |
| Bertha May Newlon.....        | Laporte, Colorado          |
| Joseph Newcomb Ostrander..... | Coulter, Colorado          |
| Richaru Robinson Parks.....   | Denver, Colorado           |
| Frank Olaf Rasmussen.....     | Delta, Colorado            |
| Gwendolyn Silcott.....        | Fort Collins, Colorado     |

|                              |                              |
|------------------------------|------------------------------|
| Waltgen Barnes Smith.....    | Denver, Colorado             |
| Glynn Buell Stannard.....    | Fort Collins, Colorado       |
| Henry Fulton Sturdevant..... | Steamboat Springs, Colorado  |
| Ned Virgil Tanner.....       | Florence, Colorado           |
| Richard Waddy Tanner.....    | Florence, Colorado           |
| William Francis Tucker..     | East Weymouth, Massachusetts |
| Oma Mary Veazey.....         | Fort Collins, Colorado       |
| John Wilson.....             | Eaton, Colorado              |

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### SOPHOMORE CLASS.

|                                 |                            |
|---------------------------------|----------------------------|
| Lorna Elizabeth Annis.....      | Fort Collins, Colorado     |
| Clyde Atlas Bartels.....        | Pueblo, Colorado           |
| Fred Corry Bishopp.....         | Virginia Dale, Colorado    |
| Adelaide Stone Bristol.....     | Fort Collins, Colorado     |
| Archie Brownell.....            | Greeley, Colorado          |
| Lewis Ezra Cattell.....         | Deuel, Colorado            |
| Leslie Newton Chatfield.....    | Littleton, Colorado        |
| James Nathaniel Clark.....      | Leadville, Colorado        |
| Gardner Ransom Cushing.....     | Fort Collins, Colorado     |
| George Davidson.....            | Brighton, Ontario, Canada  |
| Delpha Dilts.....               | Fort Collins, Colorado     |
| Wilhelmina Douglass.....        | Fort Collins, Colorado     |
| Austin Downey.....              | Fort Collins, Colorado     |
| Hattie Frances Gage.....        | Fort Collins, Colorado     |
| Ernest Nelson Graves.....       | Broomfield, Colorado       |
| Harry Valant Jessup.....        | Fort Collins, Colorado     |
| Nellie Mary Killgore.....       | Fort Collins, Colorado     |
| Frederick Newson Langridge..... | Boulder, Colorado          |
| Clara Louise Love.....          | Fort Collins, Colorado     |
| Ray Murphy.....                 | Glenwood Springs, Colorado |
| James Dombey Norveil.....       | Fort Collins, Colorado     |
| Oliver Porter Pennock.....      | Bellvue, Colorado          |
| Louis Philip Pressler.....      | Velardana, Mexico          |
| Thomas Quine.....               | Rico, Colorado             |
| Robert Earl Richardson.....     | New Windsor, Colorado      |
| Constantia Meryle Sargent.....  | Fort Collins, Colorado     |

|                                |                        |
|--------------------------------|------------------------|
| Nellie Scott.....              | Fort Collins, Colorado |
| Eleanor Tomlin.....            | Fort Collins, Colorado |
| Olive Louise Sheldon.....      | Fort Collins, Colorado |
| Edward Forrester Triplett..... | Denver, Colorado       |
| Harry True.....                | Nepesta, Colorado      |
| Irwin Walker Veazey.....       | Fort Collins, Colorado |

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**FRESHMAN CLASS.**

|                               |                        |
|-------------------------------|------------------------|
| Delmar Lloyd Alter.....       | New Windsor, Colorado  |
| Franklin Cline Andrews.....   | Pueblo, Colorado       |
| Harry Erral Aylsworth.....    | Baggs, Wyoming         |
| Vernard Babbitt.....          | Eaton, Colorado        |
| Ezra Baer.....                | Meeker, Colorado       |
| Edith Maud Benson.....        | Fort Collins, Colorado |
| Helen Agnes Berry.....        | Stout, Colorado        |
| Lewis Leonard Bonnett.....    | Fort Collins, Colorado |
| John Bell Bouton.....         | Chicago, Illinois      |
| Charles Brandt.....           | Loveland, Colorado     |
| Robert Heman Brollier.....    | Wilber, Nebraska       |
| Clarence Gillespie Brown..... | Salida, Colorado       |
| Elizabeth Jane Budrow.....    | Fort Collins, Colorado |
| Charles Wesley Burnhimer..... | Breckenridge, Colorado |
| Lloyd Cain.....               | Fort Collins, Colorado |
| Luella Case.....              | Fort Collins, Colorado |
| Horace Mahlon Cattell.....    | Deuel, Colorado        |
| Albert Roy Cliff.....         | Stout, Colorado        |
| Charles Eldridge Davis.....   | Wesley, Colorado       |
| Susan Foster Dotson.....      | Dudlow, Colorado       |
| Charles Elmer Franklin.....   | Willford, Nebraska     |
| Graham Fuller.....            | Fort Collins, Colorado |
| Grace Alice Gant.....         | Fort Collins, Colorado |
| Lena May Gilkison.....        | Laporte, Colorado      |
| Marie Gill.....               | Laramie, Wyoming       |
| Eugene Glover.....            | Fort Collins, Colorado |
| Aurela Gooldy.....            | Dixon, Wyoming         |
| Leonard Chase Graves.....     | Broomfield, Colorado   |

|                                 |                            |
|---------------------------------|----------------------------|
| Charles Dickenson Gutshall..... | Denver, Colorado           |
| John Gordon Hampton.....        | Durango, Colorado          |
| Ansel Harding.....              | Fort Collins, Colorado     |
| Bernard Hensel.....             | Grand Junction, Colorado   |
| Robert Price Jackson.....       | Denver, Colorado           |
| Wallace Jones.....              | Ritchie, Illinois          |
| Charles William Kelly.....      | Fort Collins, Colorado     |
| Charles Bruce Kortz.....        | Big Springs, Nebraska      |
| William Alfred Lamb.....        | Hillside, Colorado         |
| John Herbert Lewis.....         | Timnath, Colorado          |
| William Jefferson McAnelly..... | Fort Collins, Colorado     |
| Ida McCain.....                 | Fort Collins, Colorado     |
| William Joseph McDermith.....   | Wolcott, Colorado          |
| Emanuel Mendelson.....          | La Junta, Colorado         |
| Charles Leland Murray.....      | Fort Collins, Colorado     |
| Edna Marie Nash.....            | Fort Collins, Colorado     |
| Arthur Garfield Newell.....     | Wray, Colorado             |
| Frederick Chester Nichols.....  | Trinidad, Colorado         |
| Neils Norgaard.....             | Gypsum, Colorado           |
| Russel Gorham Peck.....         | Empire, Colorado           |
| Jennie Amelia Phillips.....     | Elizabeth, Colorado        |
| John Atcheson Phillips.....     | Elizabeth, Colorado        |
| John Eugene Ramsey.....         | Crook, Colorado            |
| Joseph Francis Reed.....        | Fort Collins, Colorado     |
| Joy Ricketts.....               | Fort Collins, Colorado     |
| Mabel Ricketts.....             | Fort Collins, Colorado     |
| Thane Estabrook Schureman.....  | Peoria, Illinois           |
| John Albert Snyder.....         | Valmont, Colorado          |
| Oro Spensley.....               | Leadville, Colorado        |
| Fred Stearley.....              | Laporte, Colorado          |
| Park Eaton Taylor.....          | Fort Collins, Colorado     |
| Florence Aurelia Tharp.....     | Laporte, Colorado          |
| John Olie Thistle.....          | Glenwood Springs, Colorado |
| Claude Lewis Titus.....         | Fort Collins, Colorado     |
| Zetta Updike.....               | Loveland, Colorado         |
| J. L. Whittle, Jr.....          | Pueblo, Colorado           |

## SUB-FRESHMAN CLASS.

|                               |                         |
|-------------------------------|-------------------------|
| Axcel Fred Arnell.....        | Alamosa, Colorado       |
| Sidney George Arscott.....    | Fort Collins, Colorado  |
| Matthew Auld.....             | Berthoud, Colorado      |
| Lilla May Barkley.....        | Fort Collins, Colorado  |
| Alice Barry.....              | Fort Collins, Colorado  |
| Nellie Beach.....             | Fort Collins, Colorado  |
| Almon Blackmer.....           | Fort Collins, Colorado  |
| Guy Elvin Bushnell.....       | Fort Collins, Colorado  |
| Elsie Wyman Button.....       | Fort Collins, Colorado  |
| Alva Bennett Calvert.....     | Dixon, Wyoming          |
| Eva Sloan Calvert.....        | Dixon, Wyoming          |
| Jennie Clark.....             | Monte Vista, Colorado   |
| Carrie Augusta Deavers.....   | Fort Collins, Colorado  |
| Myrtle Dougherty.....         | Fort Collins, Colorado  |
| Edwin Arthur Drake.....       | Fort Collins, Colorado  |
| Howard Henry Endner.....      | Gunnison, Colorado      |
| Joy Faulkner.....             | Fort Collins, Colorado  |
| William Hervey Fowler.....    | Chicago, Illinois       |
| Maude Garbe.....              | Fort Collins, Colorado  |
| John Fena Garrett.....        | Fort Collins, Colorado  |
| Albert Christian Hanson.....  | Fort Collins, Colorado  |
| James William Hawthorne.....  | Salida, Colorado        |
| Charles Hilliard.....         | Fort Collins, Colorado  |
| Fred William Hilliard.....    | Fort Collins, Colorado  |
| Marion Jay Hockley.....       | Ridgeway, Colorado      |
| Wallace Hylton.....           | Cotopaxi, Colorado      |
| Frank Freeman Jessup.....     | Fort Collins, Colorado  |
| Charles Richardson Jones..... | Ridgeway, Colorado      |
| Carrie Keck.....              | Minturn, Colorado       |
| Thomas Franklin Key.....      | Canfield, Colorado      |
| Clarence Kibler.....          | Fort Collins, Colorado  |
| Jessie Louisa Kissock.....    | Fort Collins, Colorado  |
| Effie Frances Lamb.....       | Fort Collins, Colorado  |
| George Markham.....           | Highland Lake, Colorado |
| Lewis Martin.....             | Fort Collins, Colorado  |
| Wesley Mason.....             | Masonville, Colorado    |



|                                   |                          |
|-----------------------------------|--------------------------|
| Mary Agnes McCabe.....            | Fort Collins, Colorado   |
| Alexander McDermott.....          | Hazeltine, Colorado      |
| Arthur Lee McDowell.....          | New Windsor, Colorado    |
| William Doxie McGowan.....        | Berthoud, Colorado       |
| Alexander McNeil.....             | Denver, Colorado         |
| George Washington McNeil.....     | Denver, Colorado         |
| Edward Chancey Mead.....          | Fort Collins, Colorado   |
| Mary Elizabeth Metcalfe.....      | Fort Collins, Colorado   |
| George Lewis Meyring.....         | Salina, Colorado         |
| Harry Hunter Miller.....          | Fort Collins, Colorado   |
| Enoch Josiah Mills.....           | Linton, Kansas           |
| Edith Moore.....                  | Fort Collins, Colorado   |
| Arthur Rudolph Moser.....         | Denver, Colorado         |
| Peter James Mulder.....           | Maxwell City, New Mexico |
| Oscar Lundeburg Nelson.....       | Canon City, Colorado     |
| Dennis O'Laughlin.....            | Fort Collins, Colorado   |
| Ray Oldfield.....                 | Globeville, Colorado     |
| Mary Ethel Parks.....             | Denver, Colorado         |
| Ralph Parshall.....               | Creswell, Colorado       |
| Jessie Clara Piatt.....           | Fort Collins, Colorado   |
| Mattie Prendergast.....           | Fort Collins, Colorado   |
| Hubert Ricketts.....              | Fort Collins, Colorado   |
| Francis Everett Rutledge.....     | Timnath, Colorado        |
| Grace Ellen Sankey.....           | Loveland, Colorado       |
| George Francis Schattinger.....   | Jefferson, Colorado      |
| Ethel May Schureman.....          | Peoria, Illinois         |
| William Seely.....                | Mosca, Colorado          |
| Franklin Artison Slayton.....     | Carr, Colorado           |
| Charles Alexander Somerville..... | Canon City, Colorado     |
| John Frederick Steck.....         | Kersey, Colorado         |
| Grace Stuart.....                 | Fort Collins, Colorado   |
| Emma Nellie Stuver.....           | Fort Collins, Colorado   |
| Herbert Fred Thompson.....        | Fort Collins, Colorado   |
| Madge Leona Thompson.....         | Fort Collins, Colorado   |
| Harold Earnest Urquhart.....      | Silt, Colorado           |
| Earl Marcellus Updike.....        | Loveland, Colorado       |
| Glenn Garland Walter.....         | Fort Collins, Colorado   |
| Ralph Leroy Westholm.....         | Spicer, Colorado         |

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|                          |                        |
|--------------------------|------------------------|
| Frank Smith Woodard..... | Fort Collins, Colorado |
| Grace Belle Woods.....   | Fort Collins, Colorado |
| Nora Zenor.....          | Fort Collins, Colorado |

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### PREPARATORY CLASS.

|                              |                            |
|------------------------------|----------------------------|
| Bernard Murray Anderson..... | Leadville, Colorado        |
| Clara Pearl Anderson.....    | Indianola, Iowa            |
| Kirk Calvert.....            | Baggs, Wyoming             |
| John Francis Connerty.....   | Cripple Creek, Colorado    |
| Harry Drath.....             | Fort Collins, Colorado     |
| Jesse Harrison Havens.....   | Fort Collins, Colorado     |
| Bessie Hilliard.....         | Fort Collins, Colorado     |
| Myrtle Gertrude Hoffman..... | Fort Collins, Colorado     |
| Thomas Jones.....            | Fort Collins, Colorado     |
| Lena Ava Gant.....           | Fort Collins, Colorado     |
| Theodore Goldsberry.....     | Fort Collins, Colorado     |
| Clark Krickbaum.....         | Fort Collins, Colorado     |
| Grace Littlefield.....       | Fort Collins, Colorado     |
| George Lomas.....            | Guadalupe y Calvo, Mexico  |
| Ralph McCreery.....          | Fort Collins, Colorado     |
| Walter Bingham McKibben..... | Brush, Colorado            |
| Leon Myers.....              | Fort Collins, Colorado     |
| Tina Myers.....              | Fort Collins, Colorado     |
| Grace Myers.....             | Fort Collins, Colorado     |
| Attie Dean Moore.....        | Fort Collins, Colorado     |
| Carl Chester Naylor.....     | Fort Collins, Colorado     |
| George Harry Reese.....      | Colorado City, Colorado    |
| Dora Belle Scott.....        | Fort Collins, Colorado     |
| Edward Merritt Seely.....    | Mosca, Colorado            |
| Ambrose Sherbino.....        | Ridgeway, Colorado         |
| Dudley Smith.....            | Fort Collins, Colorado     |
| Myrtle Smoke.....            | Fort Collins, Colorado     |
| Geff Barry Southcotte.....   | Colorado Springs, Colorado |
| William Hatcher Trimble..... | Fort Collins, Colorado     |

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COMMERCIAL DEPARTMENT—SENIOR CLASS.

|                            |                        |
|----------------------------|------------------------|
| Eunice Chatfield.....      | Littleton, Colorado    |
| Mary Azel Dickerson.....   | Olathe, Colorado       |
| James Elliott.....         | Timnath, Colorado      |
| L. Cale Estes.....         | Gunnison, Colorado     |
| Clara Letitia Preston..... | Fort Collins, Colorado |
| Fred Richards.....         | Fort Collins, Colorado |
| Mary Elizabeth Quick.....  | Fort Collins, Colorado |
| Edith Schang.....          | Fort Collins, Colorado |
| Emmet Oliver Smith.....    | Sterling, Colorado     |
| Pearl Smith.....           | Fort Collins, Colorado |
| Florence May Stewart.....  | Fort Collins, Colorado |
| William Strever.....       | Berthoud, Colorado     |
| Howard James Wallace.....  | Fort Collins, Colorado |
| Marion Elmore Warren.....  | Laporte, Colorado      |
| Bessie Carie Wood.....     | Eaton, Colorado        |

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COMMERCIAL DEPARTMENT—JUNIOR CLASS.

|                                |                        |
|--------------------------------|------------------------|
| Lore Edward Alford.....        | Fort Collins, Colorado |
| James Montgomery Amonette..... | Rawlins, Wyoming       |
| Cora May Anderson.....         | Fort Collins, Colorado |
| John Lawrence Ankney.....      | Wheatland, Wyoming     |
| Henry Herman Ball.....         | Oklahoma, Oklahoma     |
| Annie Caroline Beach.....      | Fort Collins, Colorado |
| Nellie Black.....              | Fort Collins, Colorado |
| Truman Purdy Brewer.....       | Aztec, New Mexico      |
| Elsa Alzina Bristol.....       | Fort Collins, Colorado |
| Fred William Brose.....        | Fort Collins, Colorado |
| Clyde Hallett Brown.....       | Fort Collins, Colorado |
| Robert Asahel Brown.....       | Rico, Colorado         |
| William Cain.....              | Bellows Falls, Vermont |
| Anna Lou Cash.....             | Fort Collins, Colorado |
| Alfred Roy Cree.....           | Manitou, Colorado      |
| Minnie Ellen Debolt.....       | Fort Collins, Colorado |
| Harrison Biggs Dillard.....    | Delta, Colorado        |

|                             |                            |
|-----------------------------|----------------------------|
| Barclay Samuel Edwards..... | Timnath, Colorado          |
| Charles Roy Emigh.....      | Fort Collins, Colorado     |
| Spencer Farmer.....         | Fort Collins, Colorado     |
| Archie Frank Finley.....    | New Windsor, Colorado      |
| Ida Mary Frampton.....      | Fort Collins, Colorado     |
| Vernon Dwight Hann.....     | Harlan, Iowa               |
| Mortimer Hawley.....        | Fort Collins, Colorado     |
| Emma Heflebower.....        | Fort Collins, Colorado     |
| John Royal Hicks.....       | Sargents, Colorado         |
| Bartholomew Holt.....       | Boulder, Colorado          |
| Mamie Ellen Holt.....       | Boulder, Colorado          |
| Hugh Reynold Keck.....      | Minturn, Colorado          |
| Addie Louisa Kortz.....     | Big Springs, Nebraska      |
| Noble D. Lane.....          | Laporte, Colorado          |
| Francis Albert Lee.....     | Glenwood Springs, Colorado |
| Alice Fidelia Leonard.....  | Fort Collins, Colorado     |
| William Garfield Lewis..... | Timnath, Colorado          |
| Joe Lindsay, Jr.....        | Leadville, Colorado        |
| John Ralph Littlefield..... | Monte Vista, Colorado      |
| Ada Livernash.....          | Fort Collins, Colorado     |
| Daisy Livernash.....        | Fort Collins, Colorado     |
| Carrie F. Lutz.....         | Victor, Colorado           |
| Eda Hattie McCain.....      | Fort Collins, Colorado     |
| Ida May McNeal.....         | Fort Collins, Colorado     |
| Arthur Dallas Milligan..... | Lawrence, Kansas           |
| Katherine Murray.....       | Fort Collins, Colorado     |
| James Dowling Pease.....    | Georgetown, Colorado       |
| Fred Prater.....            | Laveta, Colorado           |
| Fern A. V. Reeves.....      | Loveland, Colorado         |
| Henry Pierce Roberts.....   | Idaho Springs, Colorado    |
| Edward Eugene Rouleau.....  | Canon City, Colorado       |
| Delano Fulton Scott.....    | Fort Collins, Colorado     |
| Edwin Whitney Smith.....    | Castle Rock, Colorado      |
| Winnie Blanch Stewart.....  | Fort Collins, Colorado     |
| Enos James Strawn.....      | Monte Vista, Colorado      |
| Charles Clyde Urie.....     | Boulder, Colorado          |
| Jennie Welch.....           | New Windsor, Colorado      |

Stephen Henry Whitney.....Uva, Wyoming  
Bernice Ellen Youngson.....Aspen, Colorado

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UNCLASSIFIED STUDENTS.

Ethel Avery.....Fort Collins, Colorado  
Ray Baxter.....Fort Collins, Colorado  
Edith Anna Beers.....Fort Collins, Colorado  
Delphina Betts.....Fort Collins, Colorado  
Malcom Edward Connors.....Walden, Colorado  
Lina Louise Crandall.....Fort Collins, Colorado  
Harry Haines Gaume.....Fort Collins, Colorado  
Jennie Lois Hann.....Harlan, Iowa  
Grace Hodge.....Hampton, Iowa  
William Earl Hunter .....Clinton, Illinois  
Nettie Knecht.....Fort Collins, Colorado  
Emma Ethel McLellon.....Chicosa, Colorado  
Hanford Robert Nash.....Fort Collins, Colorado  
Jessica Ramer.....Fort Collins, Colorado  
George Richardson.....New Windsor, Colorado  
Florence May Roller.....Fort Collins, Colorado  
Eunice Sargent.....Fort Collins, Colorado  
Emma Ada Schelt.....Fort Collins, Colorado  
Faber Edward Schneider.....Houston, Texas  
Marie Louise Sharp.....Denver, Colorado  
Florence May Stuver.....Fort Collins, Colorado  
Eva Welch.....New Windsor, Colorado  
Otis Witcher.....Cotopaxi, Colorado

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SUMMARY.

|                    | Male. | Female. | Total. |
|--------------------|-------|---------|--------|
| Postgraduates..... | 6     | 1       | 7      |
| Seniors .....      | 20    | 10      | 30     |
| Juniors .....      | 24    | 4       | 28     |
| Sophomores .....   | 22    | 10      | 32     |
| Freshmen .....     | 48    | 16      | 64     |



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|                                |       |       |       |
|--------------------------------|-------|-------|-------|
| Sub-Freshmen .....             | 53    | 25    | 78    |
| Preparatory Class.....         | 21    | 9     | 30    |
| Commercial Course—Seniors..... | 6     | 9     | 15    |
| Commercial Course—Juniors..... | 36    | 20    | 56    |
| Unclassified Students.....     | 8     | 15    | 23    |
|                                | <hr/> | <hr/> | <hr/> |
| Total .....                    | 244   | 119   | 363   |

## GRADUATES.

### Degrees, Honorary, and Postgraduates. \*

- James W. Lawrence, B. S., 1890, Professor of Mechanical Engineering, Agricultural College of Colorado..... Fort Collins, Colorado
- Albert M. Ten Eyck, M. S., 1897 (B. S. University of Wisconsin, 1893), Assistant Agriculturist, Experiment Station..... Fargo, North Dakota
- Carl H. Potter, M. S., 1899 (B. S. University of Wisconsin, 1892), Assistant in Horticulture and Botany, Agricultural College of Colorado.. Fort Collins, Colorado

#### 1884.

- George H. Glover, B. S. (D. V. M., Iowa Agricultural College), Lecturer in Veterinary Science, Agricultural College of Colorado, Veterinary Surgeon..... 1818 Arapahoe St., Denver, Colorado
- Elizabeth Coy, B. S. (Mrs. James W. Lawrence)..... Fort Collins, Colorado
- Leonidas Loomis, B. S., Stockman..... Fort Collins, Colorado

3

#### 1885.

- Cora Bell Blinn, B. S., Student Osteopathy..... 1407 Locust St., Des Moines, Iowa
- Edna L. Hice, B. S., Teacher..... Fort Collins, Colorado
- Lelia L. Loomis, B. S. (Mrs. T. H. Robertson)..... Fort Collins, Colorado

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\* Not including those whose bachelor's degree was taken at this institution.

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|                                                                                                                                                                                                                      |                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Grace Espy Patton, B. S. (M. S., 1897), (Mrs. W. H. Cowles), Professor of English and Sociology, Agricultural College of Colorado, 1885-1897; State Superintendent of Public Instruction of Colorado, 1897-1899..... | Manila, Philippine Islands |
| Robert E. Trimble, B. S., Assistant Meteorologist and Irrigation Engineer, Experiment Station, Agricultural College of Colorado.....                                                                                 | Fort Collins, Colorado     |
| Helen White, B. S. (Mrs. John Rigden).....                                                                                                                                                                           | Timnath, Colorado          |
|                                                                                                                                                                                                                      | 6                          |

## 1886.

|                                                                                                            |                        |
|------------------------------------------------------------------------------------------------------------|------------------------|
| Wilbert J. Sickman, B. S., Clerk of the District Court of Larimer County, Colorado, until 1896, deceased.. | Fort Collins, Colorado |
|                                                                                                            | 1                      |

## 1887.

|                                                                                                                                                                         |                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Eleanor F. Gill, B. S. (Mrs. William Frazer).....                                                                                                                       | Bisbee, Arizona        |
| Marguerite E. Stratton, B. S., Librarian Agricultural College of Colorado.....                                                                                          | Fort Collins, Colorado |
| Lerah G. Stratton, B. S. (Mrs. P. J. McHugh), Librarian Agricultural College of Colorado, 1887-1891.....                                                                | Fort Collins, Colorado |
| Edwin G. Nettleton, B. S., Assistant Engineer, Bear River Canal, Utah, 1891-1892; Assistant Engineer Sonora and Sinaloa Canal, Mexico, 1893; Merchant and Engineer..... | Nampa, Idaho           |
|                                                                                                                                                                         | 4                      |

## 1888.

|                                                                                                                                                                                                             |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Lewis A. Coffin, B. S., Assistant Chemist, Agricultural College of Colorado, 1888-1889; Farmer.....                                                                                                         | Longmont, Colorado |
| Harvey H. Griffin, B. S., Superintendent of the San Luis Valley Experiment Station, 1889-1891; Superintendent New Mexico Experiment Station, Aztec, 1892-1897; Superintendent Arkansas Valley Sub-Station.. |                    |

.....Rocky Ford, Colorado  
 Josephine Lee, B. S., Teacher, City Schools.....  
 .....Boulder, Colorado  
 Jennie E. McLain, B. S., Professor of History and Geog-  
 raphy, State Normal School, Peru, Nebraska. 1891-  
 1897; Professor of History and Literature, Agricultur-  
 al College of Colorado.....Fort Collins, Colorado  
 4

1889.

Lucy Bell, B. S. (Mrs. C. V. Benson)....Loveland, Colorado  
 Arthur L. Davis, B. S. (M. D., 1895, Gross Medical Col-  
 lege, Denver), Resident Physician, St. Anthony's  
 Hospital, Denver, 1895-1897, Physician.....  
 .....Durango, Colorado  
 2

1890.

Clarence V. Benson, B. S. (LL. B., University of Michi-  
 gan, 1892; M. S., Agricultural College of Colorado,  
 1896), Secretary Board of Education, Loveland;  
 Cashier Bank of Loveland.....Loveland, Colorado  
 Velma V. Benson, B. S. (Mrs. A. Beebe).....  
 .....Loveland, Colorado  
 Burt C. Buffum, B. S. (M. S., 1893), Professor of Agri-  
 culture and Horticulture, University of Wyoming;  
 Vice-Director of Experiment Station.....  
 .....Laramie, Wyoming  
 Charles A. Duncan, B. S., Irrigation Assistant, Agricul-  
 tural College of South Dakota, 1891; Superintendent  
 San Luis Valley Experiment Station, 1893-1896;  
 Farmer.....Timnath, Colorado  
 Newton C. Garbutt, B. S., Attorney-at-Law.....  
 .....Fort Collins, Colorado  
 Helen E. Lunn, B. S. (Mrs. T. J. Montgomery).....  
 .....Fort Collins, Colorado  
 Harry R. Temple, B. S., Millman.....Ward, Colorado  
 Cora B. Thoman, B. S. (Mrs. Clarence Jarbeau), Princi-  
 pal Preparatory Department, Agricultural College

of Colorado, 1897-1898.....Ward, Colorado  
**Mary L. Weaver, B. S. (Ph. B., Ohio State University)..**  
 .....231 Church St., Urbana, Ohio  
 9

## 1891.

**Charles R. Evans, B. S., Merchant and Fruit Grower..**  
 .....Fort Collins, Colorado  
**Minnie E. McLain, B. S.....**Fort Collins, Colorado  
**John S. Calkins, B. S., Student of Medicine.....**  
 .....Denver, Colorado  
 3

## 1892.

**Charles W. Beach, B. S. (B. S., University of Illinois,**  
 1894), Assistant Engineer, Great Plains Storage and  
 Irrigation Company.....Las Animas, Colorado  
**Frank Beach, B. S. (M. S., 1896), Superintendent San**  
 Luis Valley Experiment Station, 1893-1895; Superin-  
 tendent New Mexico Experiment Station, Las Vegas,  
 1895-1896; Professor of Agriculture and Irrigation  
 Engineering, Montana State Agricultural College,  
 1896-1898; Farmer and Stockfeeder; Surveyor.....  
 .....Las Animas, Colorado  
**Alice Bell, B. S. (Mrs. S. L. Boothroyd).....**  
 .....Arkins, Colorado  
**Samuel Bell, B. S. (M. D., University of Denver, 1896),**  
 Resident Physician, St. Luke's Hospital, 1897; Phy-  
 sician.....Meeker, Colorado  
**Don A. Carpenter, B. S., Traveling Salesman, Mines and**  
 Smelter Supply Company.....Denver, Colorado  
**Porter J. Preston, B. S., Assistant State Engineer, Colo-**  
 rado, 1893-1896; Assistant Engineer Great Plains Stor-  
 age and Irrigation Company; Superintendent Fort  
 Lyons Canal.....Las Animas, Colorado  
**Albert J. Sedgwick, B. S.....**South Bend, Indiana  
**Lewis L. Stimson, B. S., County Surveyor of Weld**  
 County, 1895-1897; City Engineer of Greeley, 1897-  
 1899.....Greeley, Colorado



Frank H. Thompson, B. S., Stenographer, President's  
Office, Agricultural College of Colorado.....  
.....Fort Collins, Colorado  
9

1893.

John D. Bloomfield, B. S., Superintendent and Manager  
Phillis Canal.....Nampa, Idaho  
Samuel L. Boothroyd, B. S., Professor of Astronomy and  
Mathematics, Mount Morris College, Illinois, 1893-  
1897; Assistant Astronomer, Lowell Observatory,  
Flagstaff, Arizona, 1897-1899; Breeder of Thorough-  
bred Stock.....Arkins, Colorado  
Ida M. Lewis, B. S. (Mrs. T. J. Douglass), deceased....  
.....Timnath, Colorado  
Charles J. Gilkison, B. S., Principal Commercial Depart-  
ment, Agricultural College of Colorado.....  
.....Fort Collins, Colorado  
William J. Ralph, B. S., Deputy Post Master.....  
.....Fort Collins, Colorado  
Raymond F. Walter, B. S., County Surveyor of Weld  
County, City Engineer of Greeley; Civil Engineer..  
.....Greeley, Colorado  
William W. Willard, B. S., Merchant. .Twin Lakes, Colorado  
7

1894.

Philo K. Blinn, B. S., Superintendent Arkansas Valley  
Sub-Station, 1895-1897; Horticulturist.....  
.....Rocky Ford, Colorado  
Jacob H. Cowen, B. S. (B. Agr., Cornell University, 1899),  
Assistant Botanist and Horticulturist, Agricultural  
College of Colorado, 1895-1898; Post-Graduate Stu-  
dent, Cornell University.....Ithaca, New York  
Will H. Fairfield, B. S. (M. S., 1898), Farm Superintend-  
ent, University of Wyoming.....Laramie, Wyoming  
Minnie F. Harrington, B. S. (Mrs. W. F. Gilkison).....  
.....Laramie, Wyoming  
Herbert S. Kendall, B. S., Superintendent of Experiment

- Station, Lander, Wyoming, 1894-1896.....  
 .....Denver, Colorado  
 Celia May Southworth, B. S. (Mrs. Frank Beach), Librarian Agricultural College of Colorado, 1891-1895....  
 .....Las Animas, Colorado  
 Harlan Thomas, B. S., Member the State Board of Agriculture of Colorado, 1899; Member Board of Education and Mayor of Montclair; Architect.....  
 .....Denver, Colorado

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## 1895.

- Jean B. Balcomb, B. S., U. S. Deputy Mineral Surveyor; Engineer and Assayer, Silver Ledge Mine, Silver-ton; Constructing Engineer, North Star Gold Mining Co.; Engineer, Crystal Mining and Milling Company.  
 .....Woodland Park, Colorado  
 Herbert A. Black, B. S., Manager Gibson Lumber Company.....Lamar, Colorado  
 Edith G. Boothroyd, B. S.....Arkins, Colorado  
 Henry A. Calkins, B. S., Assistant Engineer, Mollie Gibson Mine, 1896; Medical Student.....Denver, Colorado  
 Edward P. Cooke, B. S., Statement Clerk, U. S. and Pacific Express Company.....Des Moines, Iowa  
 Loren B. Curtis, B. S., Assistant Constructing Engineer for Denver Tramway Company.....Denver, Colorado  
 William F. Gilkison, B. S. (M. E., 1898), Professor of Mechanical Engineering, University of Wyoming....  
 .....Laramie, Wyoming  
 Ella G. Goldsborough, B. S. (Mrs. E. C. Reed).....  
 .....2110 O'Neil St., Cheyenne, Wyoming  
 Seth C. Lewis, B. S., Farmer.....Timnath, Colorado  
 Edgar A. Mead, B. S., Farmer.....Greeley, Colorado  
 George W. Nelson, B. S., Assistant Superintendent, Olive Mining Company.....Grand Forks, British Columbia  
 Frances C. Schelt, B. S., Teacher....Fort Collins, Colorado  
 Walter K. Starbird, B. S., Stockman.....Denver, Colorado

1896

- Fred Alford, B. S., Assistant Chemist, Agricultural College of Colorado.....Fort Collins, Colorado  
 Henry F. Alps, B. S., Observer, United States Weather Bureau.....Nashville, Tennessee  
 William E. Becker, B. S., Letter Carrier.....  
 .....Dowagiac, Michigan  
 Florence J. Boothroyd, B. S.....Arkins, Colorado  
 Alfred H. Bungardt, B. S., Medical Student.....  
 .....Kansas City, Missouri  
 Allen P. Greenacre, B. S., Instructor, Department Mechanical Engineering, Agricultural College of Colorado.....Fort Collins, Colorado  
 Robinson W. Hawley, B. S., Assistant Engineer, Western Homestead Irrigation Company, New Mexico, 1896-1897; Assistant, Department Civil Engineering, Agricultural College of Colorado, 1898-1899; Assistant Engineer Albuquerque Irrigation Company.....  
 .....Albuquerque, New Mexico  
 John E. Kiteley, B. S., Assistant Chemist, Agricultural College of Colorado, 1896-1898; Farmer.....  
 .....Longmont, Colorado  
 Richard A. Maxfield, B. S., Sergeant U. S. Volunteer Engineer Corps, 1898-1899; Instructor Military Science and Tactics, Agricultural College of Colorado.....Fort Collins, Colorado  
 Abner S. McKee, B. S., Manager Delta County Telephone Company.....Paonia, Colorado  
 Grafton S. Norman, B. S., 2d Lieut., 8th U. S. Infantry, 1898-1899; Insurance Agent.....Hamilton, Ohio  
 Robert W. Sears, B. S., Stockman; Post Master.....  
 .....Greenhorn, Colorado

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1897

- May A. Dievendorf, B. S. (Mrs. Frank Miller).....  
 .....Fort Collins, Colorado  
 Bertram A. Gage, B. S., Stockman.....

.....Fort Collins, Colorado  
 Martha R. Gilkison, B. S. (Mrs. Frank Woods).....

.....Fort Collins, Colorado  
 Robert S. Gray, B. S., Surveyor.....Wheatland, Wyoming  
 Archie J. Harris, B. S., 1st Lieut., 2d U. S. Infantry..

.....Agua la Grande, Cuba  
 Ralph H. Hess, B. S., Instructor, Department Mathe-  
 matics, Agricultural College of Colorado.....

.....Fort Collins, Colorado  
 Alta E. Lewis, B. S., Teacher.....Timnath, Colorado  
 Smith D. Philip, B. S., Merchant and Farmer.....

.....Fort Lupton, Colorado  
 Anna L. Picken, B. S. (Mrs. N. C. Warren).....

.....Fort Collins, Colorado  
 Mary E. Prendergast, B. S., Clerk....Fort Collins, Colorado  
 David J. Richards, B. S., Student of Medicine, 1898; U.

S. Army.....Manila, Philippine Islands

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## 1898

Emil Affolter, B. S., Farmer.....Longmont, Colorado  
 Herman O. Brown, B. S., Merchant.....Salida, Colorado  
 Raymond C. Calloway, B. S., Clerk..Fort Collins, Colorado  
 William A. Dickens, B. S., Farmer....Longmont, Colorado  
 Jesse W. Goodwin, B. S., Engineer and Machinist.....

.....Loveland, Colorado  
 Fred S. Hotchkiss, B. S., Farmer and Engineer.....

.....Hotchkiss, Colorado  
 Amos Jones, B. S., Engineer Crystal River Railroad,  
 1898-1899; Assistant Department Engineering, Agri-  
 cultural College.....Fort Collins, Colorado

Herbert C. Matthews, B. S., Machinist.Cheyenne, Wyoming  
 Bernard J. Prendergast, B. S., Farmer,.....

.....Fort Collins, Colorado  
 Linnie M. Rutledge, B. S., Teacher.....Ely, Nevada  
 Charles E. Swann, B. S., Assistant Engineer, U. P. Coal  
 Company.....Rock Springs, Wyoming

Melvin D. Williams, B. S., Engineer, West Gallatin Irrig-  
 ation Company, 1898; Assistant Engineer, Pike's

COLORADO AGRICULTURAL COLLEGE. 125

Peak Power Company.....Victor, Colorado  
Thomas J. Warren, B. S., Draftsman.....Denver, Colorado

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1899

Lee R. Cooke, B. S., Machinist, Oxnard Beet Sugar Fac-  
tory.....Rocky Ford, Colorado  
Frank Corbin, B. S., Lumber Dealer.....

.....Fort Collins, Colorado

Howard E. Emigh, B. S., Postgraduate Student, Agri-  
cultural College of Colorado.....Fort Collins, Colorado

Raymond R. Fisk, B. S., Law Student.....

.....Fort Collins, Colorado

Newton M. Fitch, B. S., Railroad Engineer.....

.....Jefferson, Texas

Lewis C. Hall, B. S., Engineer and Surveyor; City  
Engineer.....Canon City, Colorado

William R. Headden, B. S., Stenographer, Director's  
Office, Agricultural Experiment Station of Colorado

.....Fort Collins, Colorado

Herman Howard, B. S., Mechanic....Fort Collins, Colorado

Addison L. Kellogg, B. S., Engineer, Colorado Springs

and Canon City Railroad.....Victor, Colorado

William J. Littleton, B. S.....Trinidad, Colorado

Charles W. Mayers, B. S.....Littleton, Colorado

Harry C. Miller, B. S., Pharmacist....Hotchkiss, Colorado

Jacob C. Mulder, B. S., Student School of Mines of Colo-  
rado.....Golden, Colorado

Charles S. Newell, B. S.....Berthoud, Colorado

Marguerite Prendergast, B. S., Student.....

.....Fort Collins, Colorado

George A. Smith, B. S., Teacher.....Snyder, Colorado

James A. Stump, B. S.....Canon City, Colorado

Edward S. G. Titus, B. S., Assistant Entomologist, Ag-  
ricultural College of Colorado....Fort Collins, Colorado

18



## COMMERCIAL COURSE.

1898

- Charles L. Arnell, Bookkeeper and Clerk.....  
 .....Alamosa, Colorado
- Ray J. Baker, Bookkeeper and Stenographer for the  
 Montelius Piano Company.....  
 .....517 Sixteenth St., Denver, Colorado
- William A. Doty, Bookkeeper and Stenographer with  
 the Freeland-Metcalf Company.....  
 .....1602 Blake St, Denver, Colorado
- Frank L. Garnick, Mechanic.....Victor, Colorado
- Richard E. Hammond, Stockman....Fort Collins, Colorado
- Agnes L. Hawley, Stenographer and Clerk, Montezuma  
 Hotel.....Las Vegas Hot Springs, New Mexico
- Pearl Hays, Instructor in Stenography and Typewriting,  
 Kentucky Female Orphan School....Midway, Kentucky
- Julius P. Oleson, Bookkeeper and Clerk....Eagle, Colorado
- Inez Smith, Stenographer and Bookkeeper for the Man-  
 chester Cotton Mills.....Denver, Colorado
- Bessie C. Wood, Stenographer for the J. C. Millen Mfg.  
 Company.....1731 Welton St., Denver, Colorado

10

1899

- Byron K. Baird, Student, University of Colorado.....  
 .....Boulder, Colorado
- Charles J. Gulkison, B. S., Principal Commercial Depart-  
 ment, Agricultural College of Colorado.....  
 .....Fort Collins, Colorado
- William R. Headden, B. S., Stenographer for Director  
 Agricultural Experiment Station of Colorado.....  
 .....Fort Collins, Colorado
- George F. Kern, Bookkeeper.....Denver, Colorado
- Lizzie M. Nicholson, Stenographer, D. & R. G. Dining  
 Car Service.....Burnham, Denver, Colorado
- Cecil G. Philip, Stockman.....Fort Lupton, Colorado

6

**OFFICERS OF THE ALUMNI ASSOCIATION.**

---

President.....Mrs. Elizabeth Lawrence  
Vice-President.....Mary E. Prendergast  
Treasurer.....Ralph H. Hess  
Secretary.....Charles J. Gilkison



**CALENDAR OF EXERCISES.****1900-1901.**


---

|                                                   |                                     |
|---------------------------------------------------|-------------------------------------|
| Entrance Examinations.....                        | Monday, September 3, 1900           |
| Registration of Students.....                     | Monday, September 3, 1900           |
| Fall Term begins.....                             | Tuesday, September 4, 1900          |
| Fall Term closes.....                             | Friday, November 30, 1900           |
| Winter Term begins.....                           | Monday, December 3, 1900            |
| Holiday Recess begins.....                        | Friday, December 21, 1900           |
| Holiday Recess closes.....                        | Friday, January 4, 1901             |
| Winter Term closes.....                           | Friday, March 8, 1901               |
| Spring Term begins.....                           | Monday, March 11, 1901              |
| Sermon before Christian Associations.....         |                                     |
| .....                                             | 3 P. M. Sunday, June 2, 1901        |
| Baccalaureate Sermon.....                         | 8 P. M. Sunday, June 2, 1901        |
| Commencement Exercises of Literary Societies..... |                                     |
| .....                                             | 8 P. M. Monday, June 3, 1901        |
| Junior Class Day Exercises.....                   | 8 P. M. Tuesday, June 4, 1901       |
| State Board of Agriculture meets....              | Wednesday, June 5, 1901             |
| Senior Class Exercises....                        | 10:30 A. M. Wednesday, June 5, 1901 |
| Alumni Debate.....                                | 8 P. M. Wednesday, June 5, 1901     |
| Commencement Exercises.....                       | Thursday, June 6, 1901              |
| Biennial Reunion of Alumni... ..                  | 8 P. M. Thursday, June 6, 1901      |



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**Twenty-Second Annual**

**Register of the Officers and Students**

... of ...

# **The State Agricultural College**

**Fort Collins, Colorado.**



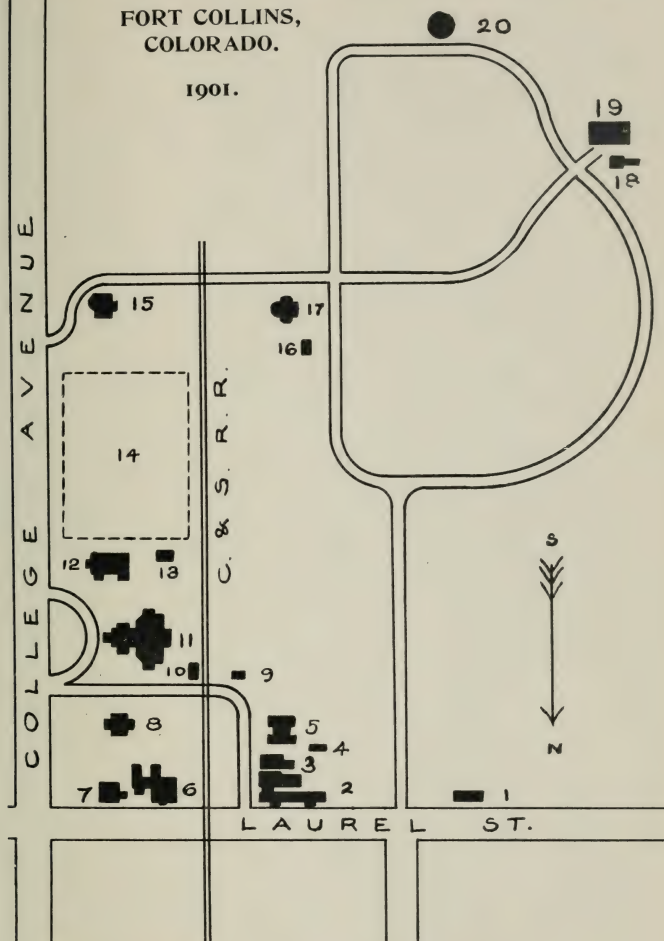
**1900-1901**



# MAP OF THE CAMPUS OF The State Agricultural College,

FORT COLLINS,  
COLORADO.

1901.



- |                                       |                                           |
|---------------------------------------|-------------------------------------------|
| 1 Horticultural Barns.                | 11 Main College Building.                 |
| 2 Mechanic Arts Hall.                 | 12 Chemical Laboratory.                   |
| 3 Mechanical Experimental Laboratory. | 13 Apiary.                                |
| 4 Hose House.                         | 14 Athletic and Parade Grounds.           |
| 5 Commercial College.                 | 15 Agricultural Hall.                     |
| 6 Horticultural Hall.                 | 16 Barn for Farm Residence.               |
| 7 Domestic Science Hall.              | 17 Residence of Professor of Agriculture. |
| 8 Civil Engineering Building.         | 18 Office and Tool House.                 |
| 9 Meteorological Station.             | 19 College Barn.                          |
| 10 College Station.                   | 20 Sheep Paddocks.                        |







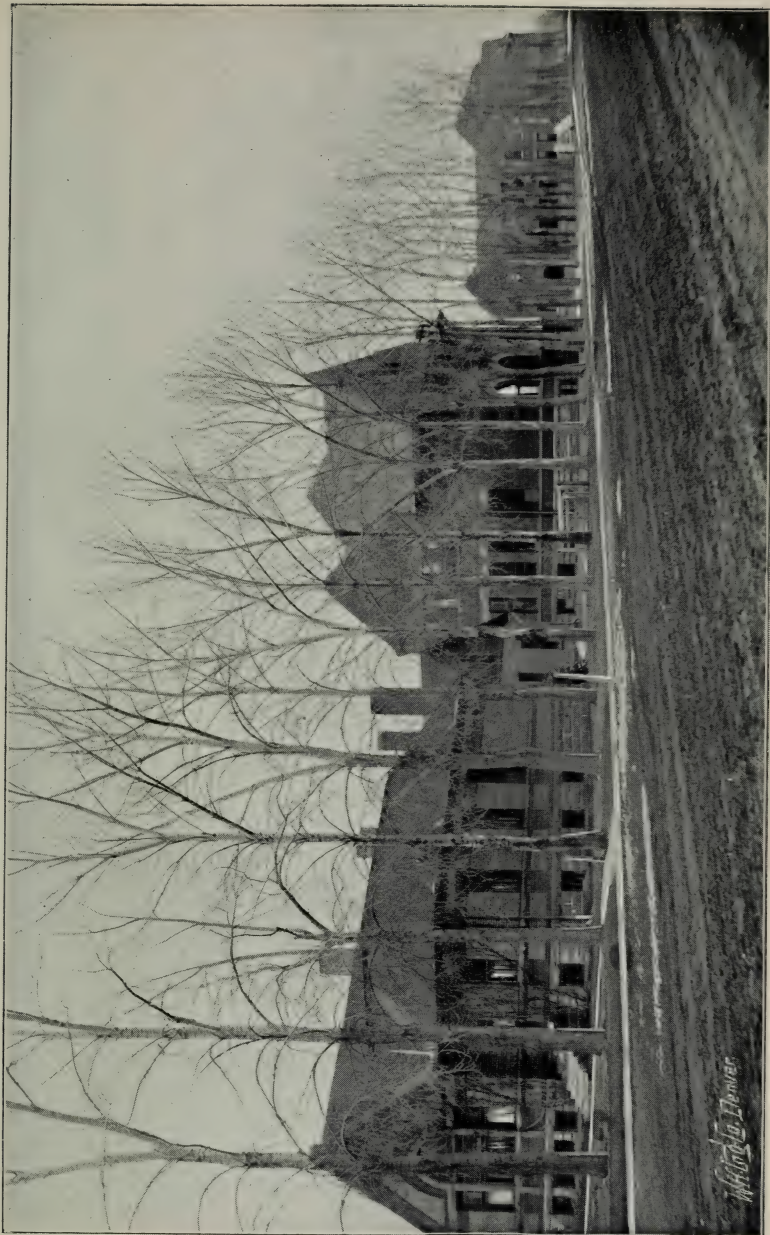
W. LAUREL ST.

COLLEGE JIVE

S

BIRD'S EYE VIEW OF BUILDINGS AND GROUNDS.

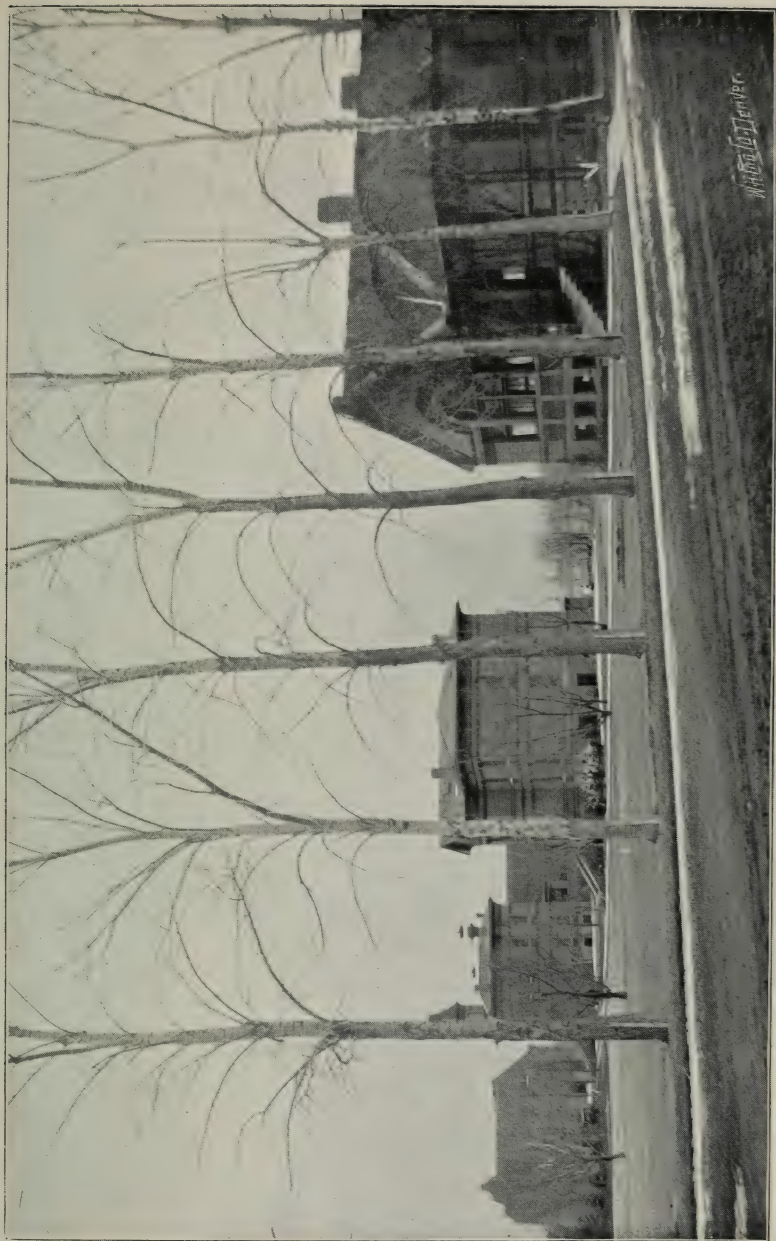




BUILDINGS, LOOKING WEST.

Wm. H. H. H. H.





BUILDINGS, LOOKING SOUTH.





# THE STATE BOARD OF AGRICULTURE.

---

|                                 | <i>Post Office.</i>  | <i>Term Expires.</i> |
|---------------------------------|----------------------|----------------------|
| HON. B. F. ROCKAFELLOW.....     | Canon City.....      | 1903                 |
| MRS. ELIZA F. ROUTT.....        | Denver .....         | 1903                 |
| HON. JESSE HARRIS.....          | Fort Collins.....    | 1905                 |
| HON. P. F. SHARP.....           | Denver .....         | 1905                 |
| HON. HARLAN THOMAS.....         | Denver .....         | 1907                 |
| HON. P. A. AMISS.....           | Pruden .....         | 1907                 |
| HON. JAMES L. CHATFIELD.....    | Gypsum .....         | 1909                 |
| HON. B. U. DYE.....             | Rocky Ford.....      | 1909                 |
| GOVERNOR J. B. ORMAN.....       | } <i>Ex-Officio.</i> |                      |
| PRESIDENT B. O. AYLESWORTH..... |                      |                      |

## OFFICERS.

|                                  |                 |
|----------------------------------|-----------------|
| P. F. SHARP.....                 | President       |
| A. M. HAWLEY.....                | Secretary       |
| J. C. CHIPLEY.....               | Treasurer       |
| (State Treasurer, Denver, Colo.) |                 |
| CHAS. H. SHELDON.....            | Local Treasurer |



# STANDING COMMITTEES.

---

## EXECUTIVE.

P. F. SHARP,                      JESSE HARRIS,                      B. F. ROCKAFELLOW.

## FINANCE.

J. L. CHATFIELD,                      B. F. ROCKAFELLOW,                      JESSE HARRIS.

## FARM, STOCK AND VETERINARY SCIENCE.

JESSE HARRIS,                      B. U. DYE,                      J. L. CHATFIELD.

## FACULTY AND COURSES OF STUDY.

B. O. AYLESWORTH,                      HARLAN THOMAS,                      ELIZA F. ROUTT.

## BOTANY, HORTICULTURE AND ENTOMOLOGY.

B. F. ROCKAFELLOW,                      B. U. DYE,                      P. A. AMISS.

## MATHEMATICS, ENGINEERING AND MILITARY SCIENCE.

HARLAN THOMAS,                      P. A. AMISS,                      B. O. AYLESWORTH.

## MECHANICS AND CHEMISTRY.

HARLAN THOMAS,                      P. A. AMISS,                      J. L. CHATFIELD.

## COLLEGE BUILDINGS AND PERMANENT IMPROVEMENTS.

B. U. DYE,                      HARLAN THOMAS,                      JESSE HARRIS.

## DOMESTIC SCIENCE AND LIBRARY.

ELIZA F. ROUTT,                      B. O. AYLESWORTH,                      B. U. DYE.

## COMMERCIAL DEPARTMENT, HISTORY AND LITERATURE, ENGLISH AND RHETORIC.

P. A. AMISS,                      J. L. CHATFIELD,                      ELIZA F. ROUTT.

# BOARD OF INSTRUCTION.

---

BARTON O. AYLESWORTH, A.M., LL.D.,  
President and Professor of Political Economy and Logic.

JAMES W. LAWRENCE, B.S.,  
Professor of Mechanical Engineering.

LOUIS G. CARPENTER, M.S.,  
Professor of Civil and Irrigation Engineering.

CLARENCE P. GILLETTE, M.S.,  
Professor of Zoology and Entomology.

WILLIAM P. HEADDEN, A.M., PH.D.,  
Professor of Chemistry and Geology.

THEODOSIA G. AMMONS,  
Professor of Domestic Science.

EDWARD B. HOUSE, B.S., E.E.,  
Professor of Mathematics.

EDWARD M. TRABER, A.B.,  
Professor of Rhetoric and Philosophy.

ALFRED M. HAWLEY,  
Secretary of the Faculty.

CHARLES J. GILKISON, B.S.,  
Principal Commercial Department.

RICHARD A. MAXFIELD, B.S., Major Cadet Battalion,  
Professor Military Science and Tactics.

BURT C. BUFFUM, M.S.,  
Professor of Agriculture.

VIRGINIA H. CORBETT, B.S.,  
Professor of History and Literature.

WENDELL PADDOCK, M.S.,  
Professor of Botany and Horticulture.

GEORGE H. GLOVER, D.V.M.,  
Professor of Veterinary Science.

# INSTRUCTORS AND ASSISTANTS.

---

ROBERT E. TRIMBLE, B.S.,  
Meteorology and Irrigation Engineering.

JAMES A. STUMP, B.S.,  
Physics and Civil Engineering.

AMOS JONES, B.S.,  
Field Work in Engineering.

L. D. CRAIN, B.M.E.,  
Mechanical Engineering.

ALLEN P. GREENACRE, B.S.,  
Forge-Room Work.

WILLIAM F. GARBE,  
Foundry Practice.

LOUIS A. TEST, B.M.E., A.C.,  
Chemistry.

FRED C. ALFORD, B.S.,  
Chemistry.

†JOSEPH LOWNES, B.S.,  
Chemistry.

EARL DOUGLASS, B.S.,  
Chemistry.

LATHROP M. TAYLOR, B.S.,  
Stenography and Typewriting.

CHARLES G. DWYRE, JR.,  
Bookkeeping.

RALPH H. HESS, B.S.,  
Mathematics.

---

† Died December 7, 1900.

SARAH T. SUTHERLAND,  
Domestic Science.

EDWARD S. G. TITUS, B.S.,  
Entomology.

ELMER D. BALL, M.S.,  
Entomology.

FRED M. ROLFS, B.S.,  
Botany and Horticulture.

HENRY H. ORTH,  
Floriculture and Landscape Gardening.

RAY C. CALLOWAY, B.S.,  
Superintendent College Farm.

CLARENCE J. GRIFFITH, B.S.A.,  
Animal Husbandry.

ANDREW H. DANIELSON, B.S.,  
Agronomy.

\*MARGUERITE E. STRATTON, B.S.,  
Librarian.

FRANK H. THOMPSON, B.S.,  
Stenographer, President's Office.

WILLIAM R. HEADDEN, B.S.,  
Stenographer, Director's Office.

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\* Died February 21, 1901.

GEO. E. TOOMEY, A. B., B. O.,  
*Oratory and Physical Culture.*

# AGRICULTURAL EXPERIMENT STATION.

---

## STATION STAFF.

|                                |                                                                 |
|--------------------------------|-----------------------------------------------------------------|
| L. G. CARPENTER, M.S.....      | Director and Irrigation Engineer                                |
| C. P. GILLETTE, M.S.....       | Entomologist                                                    |
| W. P. HEADDEN, A.M., Ph.D..... | Chemist                                                         |
| B. C. BUFFUM, M.S.....         | Agriculturist                                                   |
| WENDELL PADDOCK, M.S.....      | Horticulturist and Botanist                                     |
| G. H. GLOVER, D.V.M.....       | Veterinarian                                                    |
| R. E. TRIMBLE, B.S.....        | Asst. Meteorologist and Irrigation Engineer                     |
| L. A. TEST, B.M.E., A.C.....   | Assistant Chemist                                               |
| F. C. ALFORD, B.S.....         | Assistant Chemist                                               |
| *JOSEPH LOWNES, B.S.....       | Assistant Chemist                                               |
| EARL DOUGLASS, B.S.....        | Assistant Chemist                                               |
| E. S. G. TITUS, B.S.....       | Assistant Entomologist                                          |
| E. D. BALL, M.S.....           | Assistant Entomologist                                          |
| F. M. ROLFS, B.S.....          | Assistant Horticulturist                                        |
| A. H. DANIELSON, B.S.....      | Agronomist                                                      |
| C. J. GRIFFITH, B.S.A.....     | Assistant in Animal Husbandry                                   |
| H. H. GRIFFIN, B.S.....        | Superintendent Arkansas Valley Sub-Station<br>Rocky Ford, Colo. |
| J. E. PAYNE, M.S.....          | Superintendent Plains Sub-Station<br>Cheyenne Wells, Colo.      |

## OFFICERS.

|                           |              |
|---------------------------|--------------|
| L. G. CARPENTER, M.S..... | Director     |
| A. M. HAWLEY.....         | Secretary    |
| W. R. HEADDEN, B.S.....   | Stenographer |

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\* Died December 7, 1900.

## LOCATION AND HISTORY.

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**LOCATION.**—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer County, which is one of the most prosperous agricultural counties in the State. The town contains 4,000 inhabitants, and is beautifully situated about five miles from the foothills, and in full view of Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light, and its sidewalks are exclusively made of flag-stone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Colorado and Southern Railway are its buildings and the farm. Visitors are always welcome. They find the town accessible by three trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

**HISTORY.**—The origin of The State Agricultural College of Colorado, like that of its sister institutions in other states, dates back to an act of Congress, passed July 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, *"a college where the leading object shall be, without excluding other scientific and classical studies, and including Military Tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."*

This act gave the College an endowment of 90,000 acres of land.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State *two hundred and forty acres of land* whereon to erect the necessary buildings. In 1877, the Legislature



provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The corner-stone of the Main College Building was laid July 29, 1878. This building was completed and ready for occupancy early in the following year.

The initial term of the College opened September 1, 1879. The record shows the enrollment of twenty different students at the close of this term. There was but one course of study. The college year began with the spring term and closed with the autumn term, the vacation season occurring in midwinter. The calendar for 1881-1882 shows the abandonment of this arrangement and the adoption of the present plan of three consecutive terms of thirteen weeks each, with a short vacation at Christmas season and a long vacation extending from "Commencement Day," early in June, to the first Monday in September.

Elective studies are first noted in the catalogue for 1886-'87. The next year brings the announcement for the differentiation of the work at the close of the Sophomore year. Two courses, the Agricultural and the Mechanical, are outlined. The Irrigation Engineering Course and the Ladies' Course were first scheduled in the catalogue for 1889-'90. The Commercial Course, to be completed in two years, was introduced in 1896.

The enrollment of students and the number of graduates for the last four years is as follows:

| Years.    | Males. | Females. | Total. | Graduates. |
|-----------|--------|----------|--------|------------|
| 1898..... | 245    | 99       | 344    | 13         |
| 1899..... | 251    | 94       | 345    | 18         |
| 1900..... | 245    | 119      | 364    | 26         |
| 1901..... | 273    | 114      | 387    | 23         |

The enrollment of 1900 included thirty students in the Preparatory class that were not in any regular collegiate work, thus reducing the number of students of college rank to 334. At the beginning of the year just closed the Preparatory class was dropped from the course, showing the gain in students of collegiate rank of 1901 over 1900 to be fifty-three.



The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoology and Entomology, Mechanical Engineering, Civil and Irrigation Engineering, Mathematics, Logic and Political Economy, History and Literature, Rhetoric and Philosophy, Architecture, Domestic Science, Veterinary Science, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, German, Spanish, Oratory and Physical Culture.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

“The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, *and shall be a high seminary of learning*, in which the graduates of the common schools, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those Sciences and Arts which bear directly upon *agriculture and kindred industrial pursuits.*”



## **Courses of Study.**



## SUB-FRESHMAN YEAR.

---

### FALL TERM.

Algebra, 5.....Wentworth  
 Lessons in English, 3.....Herrick and Damon  
 English Interpretation, 3.....  
 Freehand Drawing, 4.....

Afternoons: { Farm,  $\frac{2}{3}$ ; Shop,  $\frac{1}{3}$ .  
 { Domestic Science.

### WINTER TERM.

Algebra, 5.....Wentworth  
 American Literature, 3.....Watkins  
 Lessons in English, 3.....Herrick and Damon  
 Freehand Drawing, 4.....

Afternoons: { Shop.  
 { Domestic Science.  
 { Library.

### SPRING TERM.

Algebra, 5.....Wentworth  
 American Literature, 3.....Watkins  
 Lessons in English, 3.....Herrick and Damon  
 Freehand Drawing, 4.....

Afternoons: { Shop,  $\frac{1}{3}$ ; Garden,  $\frac{2}{3}$ .  
 { Domestic Science.  
 { Library.

Military Drill and Physical Culture daily except Wednesday.

The figure after each subject indicates the number of recitations per week.

## FRESHMAN YEAR.

---

### FALL TERM.

|                                               |                |
|-----------------------------------------------|----------------|
| Geometry, 5.....                              | Wentworth      |
| Carpentry and Joinery, or Agriculture, 4..... | Goss or Bailey |
| Botany, 3.....                                |                |
| General History, 3.....                       | Sheldon        |

Afternoons: { Garden,  $\frac{2}{3}$ ; Shop,  $\frac{1}{3}$ .  
                   { Domestic Science, Sewing.  
                   { Library.

### WINTER TERM.

|                                  |                   |
|----------------------------------|-------------------|
| Geometry, 5.....                 | Wentworth         |
| Rhetoric and Composition, 3..... | Herriek and Damon |
| General History, 3.....          | Sheldon           |
| Mechanical Drawing, 4.....       |                   |

Afternoons: { Shop.  
                   { Domestic Science, Sewing.  
                   { Library.

### SPRING TERM.

|                                  |                   |
|----------------------------------|-------------------|
| Geometry, 5.....                 | Wentworth         |
| Botany, 3.....                   |                   |
| Rhetoric and Composition, 3..... | Herriek and Damon |
| Mechanical Drawing, 4.....       |                   |

Afternoons: { Shop,  $\frac{1}{3}$ ; Farm,  $\frac{2}{3}$ .  
                   { Domestic Science, Sewing.

Military Drill and Physical Culture daily except Wednesday.

The course from this point is separated into:

1. The Agricultural—A.
2. The Mechanical Engineering—M.
3. The Civil and Irrigation Engineering—C.
4. The Ladies'—L.
5. The Architectural—Ar.
6. The Veterinary Science—V.

All lead to the degree of Bachelor of Science.



# SOPHOMORE YEAR.

## FALL TERM.

|                                             |           |
|---------------------------------------------|-----------|
| Elementary Architectural Design, 4, Ar..... |           |
| Algebra, 5.....                             | Wentworth |
| English Literature, 3.....                  | Kellogg   |
| Physiology, 3.....                          | Martin    |
| Mechanical Drawing, 4.....                  |           |

|             |                                 |
|-------------|---------------------------------|
| Afternoons: | { Stereotomy, Ar.               |
|             | { Shop, A., C., M., ½.          |
|             | { Domestic Science, Cooking, ½. |
|             | { Library.                      |
|             | { Physiological Laboratory, ½.  |

## WINTER TERM.

|                                     |                      |
|-------------------------------------|----------------------|
| Trigonometry, 5.....                | Wentworth            |
| Physiology, 3.....                  | Martin               |
| Physics, 4.....                     | Carhart and Chute    |
| Agriculture, 3, A.....              | Lectures             |
| Hygiene and Sanitation, 3, L.....   | Public Health Essays |
| Descriptive Geometry, 3, C., M..... | Faunce               |

|             |                                |
|-------------|--------------------------------|
| Afternoons: | { Physical Laboratory, ½.      |
|             | { Shop, A., C., M., ½.         |
|             | { Millinery and Embroidery, ½. |

## SPRING TERM.

|                                                             |          |
|-------------------------------------------------------------|----------|
| Electricity, 5.....                                         | Thompson |
| Surveying, 5, A., C., M.....                                | Raymond  |
| Domestic Science, 4 (Emergencies, Conversation, etc.) L.... | Lectures |
| Stock Breeding, 5, A.....                                   | Warfield |
| Psychology, 3, L.....                                       | Halleck  |
| Descriptive Geometry, 5, C., M.....                         | Faunce   |

|             |                                |
|-------------|--------------------------------|
| Afternoons: | { Surveying, A., C., M., ½.    |
|             | { Dairying, L., ½.             |
|             | { Physical Laboratory, A., C., |
|             | { M., L., ½.                   |

Military Drill and Physical Culture daily except Wednesday.

## AGRICULTURAL COURSE.

---

### JUNIOR YEAR—FALL TERM.

|                                  |                              |
|----------------------------------|------------------------------|
| Chemistry, 2.....                |                              |
| Stock Feeding, 3.....            | Henry                        |
| Horticulture, 3.....             | Lectures                     |
| Physics (Mechanics), 5.....      |                              |
| { Landscape Gardening, 2, ½..... | Lectures                     |
| { Meteorology, 2, ½.....         | Waldo                        |
| Afternoons: {                    | Physical Laboratory, ¾.      |
|                                  | Horticultural Laboratory, ¾. |

### WINTER TERM.

|                              |                        |
|------------------------------|------------------------|
| Chemistry, 2.....            |                        |
| Zoology, 5.....              | Packard                |
| Horticulture, 4.....         | Lectures               |
| Geology, 3.....              | Tarr                   |
| Physiological Botany, 1..... | Strausburger           |
| Afternoons: {                | Zoological Laboratory, |
|                              | 4 per week.            |
|                              | Physiological Botany,  |
|                              | 6 per week.            |

### SPRING TERM.

|                                                       |                              |
|-------------------------------------------------------|------------------------------|
| Hydraulics, 4.....                                    | Lectures                     |
| Entomology, 4.....                                    | J. B. Smith                  |
| Geology, 4.....                                       | Dana                         |
| Recent History, 3.....                                | McCarthy                     |
| Bee Culture, 3, elect in place of Recent History..... |                              |
| Afternoons: {                                         | Entomological Laboratory, ¾. |
|                                                       | Farm, ¾.                     |
|                                                       | Library.                     |

Military Drill daily except Wednesday.

## AGRICULTURAL COURSE.

### SENIOR YEAR—FALL TERM.

|                                           |        |
|-------------------------------------------|--------|
| Literature, 3.....                        | Syle   |
| Constitution of the United States, 2..... |        |
| Veterinary Science, 3.....                |        |
| Dairying, 2.....                          | Gurler |
| Chemistry, 5.....                         | Remsen |

Afternoons: { Dairying,  $\frac{2}{5}$ .  
 { Chemical Laboratory,  $\frac{3}{5}$ .

### WINTER TERM.

|                            |          |
|----------------------------|----------|
| Chemistry, 5.....          | Remsen   |
| Agriculture, 3.....        | Lectures |
| Veterinary Science, 3..... |          |
| Horticulture, 4.....       | Lectures |

Afternoons: Chemical Laboratory.

### SPRING TERM.

|                                |                |
|--------------------------------|----------------|
| Agricultural Chemistry, 4..... | Johnson-Aikman |
| Political Economy, 4.....      | Ely            |
| Veterinary Science, 4.....     |                |
| *Recent History, 3.....        | Wilson         |

Afternoons: { Embryological Laboratory,  $\frac{1}{2}$ .  
 { Chemical Laboratory,  $\frac{1}{2}$ .  
 { Garden,  $\frac{1}{2}$ .  
 { Library.

Military Drill daily except Wednesday.

|                     |          |
|---------------------|----------|
| *Embryology, 3..... | Elective |
|---------------------|----------|

## MECHANICAL ENGINEERING COURSE.

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### JUNIOR YEAR—FALL TERM.

|                             |           |
|-----------------------------|-----------|
| College Algebra, 5.....     | Wentworth |
| Physics (Mechanics), 5..... |           |
| Chemistry, 2 .....          |           |
| Boilers, 3.....             | Wilson    |

Afternoons: { Physical Laboratory,  $\frac{3}{5}$ .  
                   { Shop,  $\frac{2}{5}$ .

### WINTER TERM.

|                                           |              |
|-------------------------------------------|--------------|
| Chemistry, 2.....                         |              |
| Drawing, 3.....                           | Instrumental |
| Logic or Physiological Psychology, 2..... |              |
| Analytical Geometry, 5.....               | Wentworth    |
| Geology, 3.....                           | Tarr         |

Afternoons: Shop.

### SPRING TERM.

|                                         |                 |
|-----------------------------------------|-----------------|
| Workshop Methods and Appliances, 3..... | Rose            |
| Principles of Mechanism, 4.....         | Stahl and Woods |
| Calculus, 5.....                        | Taylor          |
| Drawing, 3.....                         | Instrumental    |

Afternoons: Shop.

Military Drill daily except Wednesday.

# MECHANICAL ENGINEERING COURSE.

## SENIOR YEAR—FALL TERM.

|                      |        |
|----------------------|--------|
| Steam Engine, 5..... | Holmes |
| Calculus, 5 .....    | Taylor |
| Chemistry, 5 .....   | Remsen |

Afternoons: { Shop,  $\frac{2}{5}$ .  
 { Chemical Laboratory,  $\frac{3}{5}$ .  
 { Drawing, 4 per week.

## WINTER TERM.

|                               |              |
|-------------------------------|--------------|
| Chemistry, 5 .....            | Remsen       |
| Transmission of Power, 3..... | Lectures     |
| Strength of Materials, 5..... | Merriman     |
| Drawing, 2 .....              | Instrumental |

Afternoons: { Chemical Laboratory,  $\frac{3}{5}$ .  
 { Testing Materials,  $\frac{2}{5}$ .  
 { Drawing, 2 per week.

## SPRING TERM.

|                           |          |
|---------------------------|----------|
| Steam Engineering, 4..... | Lectures |
| Political Economy, 4..... | Ely      |
| Special Machines, 4.....  | Lectures |
| Recent History, 3.....    | Wilson   |

Afternoons: { Mechanical Engineering  
 { Laboratory.  
 { Library.

Military Drill daily except Wednesday.

CIVIL AND IRRIGATION ENGINEERING  
COURSE.

JUNIOR YEAR—FALL TERM.

|                             |                                      |
|-----------------------------|--------------------------------------|
| College Algebra, 5.....     | Wentworth                            |
| Chemistry, 2.....           |                                      |
| Physics (Mechanics), 5..... |                                      |
| Higher Surveying, 3.....    | Raymond                              |
| Afternoons: {               | Horticulture, $\frac{2}{5}$ .        |
|                             | Physical Laboratory, $\frac{3}{5}$ . |

WINTER TERM.

|                                |                           |
|--------------------------------|---------------------------|
| Chemistry, 2.....              |                           |
| Irrigation Engineering, 4..... | Wilson                    |
| Analytical Geometry, 5.....    | Wentworth                 |
| Geology, 3.....                | Tarr                      |
| Drawing, 2 .....               | Instrumental              |
| Afternoons: {                  | Drawing, 2 per week.      |
|                                | Field and Laboratory Work |
|                                | in Engineering.           |

SPRING TERM.

|                               |                    |
|-------------------------------|--------------------|
| Hydraulics, 4 .....           | Lectures           |
| Topographical Drawing, 5..... |                    |
| Calculus, 5.....              | Taylor             |
| Afternoons:                   | Field Engineering. |

Military Drill daily except Wednesday.

# CIVIL AND IRRIGATION ENGINEERING COURSE.

## SENIOR YEAR—FALL TERM.

|               |                                             |          |
|---------------|---------------------------------------------|----------|
| {             | Reservoirs and Dams, 3, $\frac{1}{2}$ ..... | Lectures |
| {             | Meteorology, 2, $\frac{1}{2}$ .....         | Waldo    |
|               | Constitution of the United States, 2.....   |          |
|               | Calculus, 5.....                            | Taylor   |
|               | Chemistry, 5 .....                          | Remsen   |
| Afternoons: { |                                             |          |
|               | Engineering, $\frac{2}{5}$ .                |          |
|               | Chemical Laboratory, $\frac{3}{5}$ .        |          |

## WINTER TERM.

|                                           |                                       |
|-------------------------------------------|---------------------------------------|
| *Chemistry, 5 .....                       | Remsen                                |
| Logic or Physiological Psychology, 2..... |                                       |
| Strength of Materials, 5.....             | Merriman                              |
| Drawing, 3 .....                          | Instrumental                          |
| Afternoons: {                             |                                       |
|                                           | Chemical Laboratory, $\frac{3}{5}$ .  |
|                                           | Testing of Materials, $\frac{2}{5}$ . |
|                                           | Field Work, $\frac{3}{5}$ .           |

## SPRING TERM.

|                             |              |
|-----------------------------|--------------|
| Hydraulics, 4 .....         | Lectures     |
| Political Economy, 4.....   | Ely          |
| Recent History, 3.....      | Wilson       |
| Trusses and Bridges, 4..... | Merriman     |
| Afternoons: {               |              |
|                             | Engineering. |
|                             | Library.     |

Military Drill daily except Wednesday.

\*Railroad Engineering, 5.....Elective



## LADIES' COURSE.

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### JUNIOR YEAR—FALL TERM.

|                                               |          |
|-----------------------------------------------|----------|
| { Landscape Gardening, 2, $\frac{1}{2}$ ..... | Lectures |
| { Meteorology, 2, $\frac{1}{2}$ .....         | Waldo    |
| { Histology, 5, $\frac{1}{2}$ .....           |          |
| { Heat, 5, $\frac{1}{2}$ .....                |          |
| Chemistry, 2 .....                            |          |
| Chemistry of Cooking, 3.....                  | Richards |
| Horticulture, 3 .....                         | Lectures |

Afternoons: { Physical Laboratory,  $\frac{3}{4}$ .  
 Horticultural Laboratory,  $\frac{2}{3}$ .

### WINTER TERM.

|                              |         |
|------------------------------|---------|
| Chemistry, 2 .....           |         |
| Science of Nutrition, 4..... | Atwater |
| Zoology, 5 .....             | Packard |
| Geology, 3.....              | Tarr    |

Afternoons: { Domestic Science, Cooking,  
 Millinery.  
 Zoological Laboratory,  
 4 per week.

### SPRING TERM.

|                        |          |
|------------------------|----------|
| Home Nursing, 4.....   | Weeks    |
| Entomology, 4 .....    | Smith    |
| Geology, 4 .....       | Dana     |
| Recent History, 3..... | McCarthy |

Afternoons: { Domestic Science, Sewing,  $\frac{1}{2}$ .  
 Latin (Elective).  
 German (Elective).  
 Library.  
 Entomological Laboratory,  $\frac{1}{2}$ .

## LADIES' COURSE.

### SENIOR YEAR—FALL TERM.

|                                           |           |
|-------------------------------------------|-----------|
| Constitution of the United States, 2..... |           |
| Literature, 3 .....                       | Syle      |
| Ethics, 4 .....                           | Mackenzie |
| Chemistry, 5 .....                        | Remsen    |

Afternoons: { Library in Literature,  $\frac{2}{5}$ .  
 { Chemical Laboratory,  $\frac{3}{5}$ .

### WINTER TERM.

|                                           |                   |
|-------------------------------------------|-------------------|
| Chemistry, 5 .....                        | Remsen            |
| Logic or Physiological Psychology, 2..... |                   |
| Philosophy of History, 3.....             | Andrews           |
| Sociology, 4.....                         | Small and Vincent |

Afternoons: Chemical Laboratory.

### SPRING TERM.

|                                                              |         |
|--------------------------------------------------------------|---------|
| Sociology, 4 .....                                           | Gladden |
| Political Economy, 4.....                                    | Ely     |
| *Recent History, 3.....                                      | Wilson  |
| { Special Lectures, Domestic Science, 3, $\frac{1}{2}$ ..... |         |
| { Poetry and Fiction, 3, $\frac{1}{2}$ .....                 |         |

Afternoons: { Recent History,  $\frac{1}{2}$ .  
 { Latin (Elective).  
 { German (Elective).  
 { Fine Needle Work,  $\frac{1}{2}$ .  
 { Embryological Laboratory,  $\frac{1}{2}$

\*Embryology, 3 .....

Elective

ARCHITECTURAL COURSE.

JUNIOR YEAR—FALL TERM.

|                                          |           |
|------------------------------------------|-----------|
| College Algebra, 5.....                  | Wentworth |
| Shades and Shadows, 3.....               |           |
| Physics (Mechanics), 5.....              |           |
| Perspective, 2 .....                     |           |
| Afternoons: { Architectural Design, 2/3. |           |
| { Physical Laboratory, 3/6.              |           |

WINTER TERM.

|                                                  |           |
|--------------------------------------------------|-----------|
| Logic or Physiological Psychology, 2.....        |           |
| Analytical Geometry, 5.....                      | Wentworth |
| Geology, 3 .....                                 | Tarr      |
| Architectural Design, 3.....                     |           |
| Afternoons: Ancient and Romanesque Architecture. |           |

SPRING TERM.

|                                        |        |
|----------------------------------------|--------|
| Calculus, 5.....                       | Taylor |
| Architectural Design, 10.....          |        |
| Afternoons: Contracts.                 |        |
| Military Drill daily except Wednesday. |        |

## ARCHITECTURAL COURSE.

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### SENIOR YEAR—FALL TERM.

Specifications and Working Drawings, 5.....  
 Calculus, 5 .....Taylor  
 Chemistry, 5 .....Remsen

Afternoons: { Chemical Laboratory,  $\frac{3}{5}$ .  
 { Heating and Ventilation,  $\frac{2}{5}$ .

### WINTER TERM.

Gothic and Renaissance Architecture, 3.....  
 Chemistry, 5 .....Remsen  
 Strength of Materials, 5.....Merriman  
 Pen and Ink Drawing, 2.....

Afternoons: { Chemical Laboratory,  $\frac{3}{5}$ .  
 { Testing Materials,  $\frac{2}{5}$ .

### SPRING TERM.

Recent History, 3.....Wilson  
 History of Architecture, 4.....  
 Pen and Ink Drawing, 4.....  
 Political Economy, 4.....Ely

Afternoons: Architectural Design.

Military Drill daily except Wednesday.

## VETERINARY COURSE.

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### JUNIOR YEAR—FALL TERM.

|                        |         |
|------------------------|---------|
| Chemistry, 2 .....     |         |
| Anatomy, 4 .....       |         |
| Materia Medica, 3..... |         |
| Stock Feeding .....    | Stewart |

Afternoons: Clinics.

### WINTER TERM.

|                              |             |
|------------------------------|-------------|
| Chemistry, 2 .....           |             |
| Physiological Botany, 3..... | Strasburger |
| Materia Medica, 3.....       |             |
| Zoology, 3 .....             | Orton       |

Afternoons: Clinics.

### SPRING TERM.

|                                                   |                      |
|---------------------------------------------------|----------------------|
| Anatomy, 4 .....                                  |                      |
| Recent History, 3.....                            | McCarthy and Library |
| Entomology, 4.....                                | J. B. Smith          |
| Principles and Practice of Materia Medica, 4..... |                      |

Afternoons: { Entomological Laboratory,  $\frac{2}{5}$ .  
                  { Clinics,  $\frac{3}{5}$ .

Military Drill daily except Wednesday.

## VETERINARY COURSE.

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### SENIOR YEAR—FALL TERM.

|                                           |          |
|-------------------------------------------|----------|
| Chemistry, 5 .....                        | Remsen   |
| Bacteriology, 3 .....                     | Lectures |
| Pathology, 4 .....                        |          |
| Constitution of the United States, 2..... | Andrews  |

Afternoons: { Clinics,  $\frac{2}{5}$ .  
                   { Chemical Laboratory,  $\frac{3}{5}$ .

### WINTER TERM.

|                       |          |
|-----------------------|----------|
| Chemistry, 5 .....    | Remsen   |
| Pathology, 4.....     |          |
| Therapeutics, 4 ..... |          |
| Agriculture, 3 .....  | Lectures |

Afternoons: { Chemical Laboratory.  
                   { Clinics.

### SPRING TERM.

|                                |                |
|--------------------------------|----------------|
| Agricultural Chemistry, 5..... | Johnson-Aikman |
| Political Economy, 4.....      | Ely            |
| Pathology, 4 .....             |                |
| Therapeutics, 4 .....          |                |

Afternoons: { Chemical Laboratory,  $\frac{1}{2}$ .  
                   { Clinics,  $\frac{1}{2}$

Military Drill daily except Wednesday.

COMMERCIAL DEPARTMENT.

JUNIOR YEAR—FALL TERM.

|                               |           |
|-------------------------------|-----------|
| Commercial Arithmetic, 5..... | Packard   |
| Geometry, 5 .....             | Wentworth |
| General History, 3.....       | Sheldon   |
| Spelling, 2 .....             |           |

Bookkeeping.  
Spelling and Penmanship.

WINTER TERM.

|                                  |                   |
|----------------------------------|-------------------|
| Rhetoric and Composition, 3..... | Herrick and Damon |
| Commercial Arithmetic, 3.....    | Packard           |
| General History, 3.....          | Sheldon           |
| Geometry, 5 .....                | Wentworth         |
| Accounting, 1 .....              |                   |

Bookkeeping.  
Penmanship.  
Commercial Arithmetic, 1 per week.

SPRING TERM.

|                                                |                   |
|------------------------------------------------|-------------------|
| Commercial Arithmetic, 5.....                  | Packard           |
| Geometry, 5 .....                              | Wentworth         |
| Rhetoric, 3.....                               | Herrick and Damon |
| Business Correspondence and Penmanship, 2..... |                   |

Business Practice and Banking.

Military Drill daily except Wednesday.



## COMMERCIAL DEPARTMENT.

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### SENIOR YEAR—FALL TERM.

|                                           |         |
|-------------------------------------------|---------|
| Constitution of the United States, 2..... |         |
| Stenography, 5 .....                      | Pitman  |
| Literature, 3 .....                       | Kellogg |
| Business Geography, 5.....                | Tilden  |
| Stenography and Typewriting.              |         |

### WINTER TERM.

|                                  |                   |
|----------------------------------|-------------------|
| Business Law, 5.....             | Musselman         |
| Stenography, 4 .....             | Pitman            |
| Physiological Psychology, 2..... |                   |
| Sociology, 4.....                | Small and Vincent |
| Stenography and Typewriting.     |                   |

### SPRING TERM.

|                                  |           |
|----------------------------------|-----------|
| Political Economy, 4.....        | Ely       |
| Sociology, 4 .....               | Gladden   |
| Stenography, 4 .....             | Pitman    |
| Business Law, 4.....             | Musselman |
| Typewriting and Office Practice. |           |

Military Drill daily except Wednesday.



## **Departments of Instruction.**



## AGRICULTURE.

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B. C. BUFFUM, M.S.

C. J. GRIFFITH, B.S.A.

A. H. DANIELSON, B.S.

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As this is an Agricultural College, it is natural to expect that the Agricultural Department would be especially fostered by the College authorities. A large appropriation is made each year for carrying on the operations and great care is taken to make the work, both out-doors and in the class-room, eminently practical—to teach the student what he needs to know in his every-day life on the farm after graduation.

The College Farm of two hundred and forty acres is happily situated for the purposes of instruction. Here we have exemplified most of the problems of getting water to the land and carrying off the surplus and seepage that will arise anywhere in the State. The main irrigation water supply of the farm is brought in an underground pipe line nearly a mile from the canal; it is then carried by an inverted siphon to a reservoir on the top of a knoll, from which it is distributed to the various fields. The gathering of underground water and bringing it to the surface for irrigation purposes is exemplified by more than a mile of ditches and drains that tap the sloughs west of the farm and provide, free of charge, a large part of the irrigation water used on the farm. On the other hand, the carrying away of surplus water and the reclaiming of seepage land is here shown in all its phases. The finest crops on the farm are grown on what used to be a cat-tail swamp, reclaimed by a single line of tile.

The farm is equipped with devices for measuring the flow and volume of water so that the student can learn how much water is being applied to crops and relatively different needs of various crops.

Especially valuable to the student is the fact that the farm is a part of the Experiment Station. He has the advantage of watching

the several experiments and noting the results. Here he can see and become acquainted with all the new forage and grain crops that are heralded by the seed trade, learn their adaptability to Colorado soil and conditions, while reference to the very complete library of the publications of all the other Experiment Stations will enable him to form a correct judgment as to their value for Colorado as compared with their usefulness in other parts of the country. This feature alone will save the student a great deal of time and money when he comes to carrying on a farm of his own.

Since Colorado is a great stock-producing State, one would expect the Live Stock Department to be well supplied; nor will he be disappointed. The production of meat naturally holds the first place, and the possibilities in this line are exemplified by the finest herd of registered Shorthorns to be found in the West. Several additions to the herd have been made recently at large expense, and it is the avowed intention of the College authorities to have here as an object lesson to the student equally good herds of the other breeds of cattle as soon as the finances of the College will permit.

But the dairy side has not been neglected. The student will find here a choice herd of registered Jerseys, the milk of which is handled by the students in the College Dairy Department. In the course of his regular work the student is taught the good and bad points of dairy and meat cattle, and learns to score them according to the accepted standards of the breed.

In sheep the College is supplied with a breeding flock of fine registered Shropshires, from which the student learns the possibilities of Colorado for the production of early lambs.

The study of the herd of registered Berkshires at the farm shows the student the use of alfalfa pasture in hog raising as compared with the exclusive grain feeding of the East.

Some extra fine Clydesdale horses complete the present stock on the farm.

**CLASSROOM WORK.**—The classroom work of the Agricultural Department begins in the Freshman year, when the student takes up the fundamental principles that underlie all agriculture. He studies the nature of the soil; the methods and uses of cultivation, amount and kind of plant food required by different crops; different kinds of fertilizers, their relative value and methods of application; need of the plant for water; proper time and method of applying; principles of

farm drainage and methods of laying tile drains. A part of the time is devoted to the study of the history, characteristics, and a relative value of the various breeds of domestic animals.

In the winter term the Sophomores take a course of general lectures in agriculture, covering the subjects of locating and laying out the farm, the location and construction of farm buildings, farm accounts, rotations for Western conditions and the management of farm labor. The student draws plans, writes specifications and estimates the cost of the simpler farm buildings, such as every farmer is called upon to construct on his farm or ranch.

Lectures five hours per week through the term.

The spring term of the Sophomore year is devoted to the very important subject of Stock Breeding. The student learns the principles of heredity; the advantages and disadvantages of in-breeding and cross-breeding; he learns to make out pedigrees and to estimate their value. The large amount of stock of the farm furnishes him an abundance of material and is a constant object lesson in the application of the principles learned.

The subject of Stock Feeding is begun in the Junior year. More time is devoted to this than to any other one subject, because this is made to include not only the feeding of the animals on the farm, but the raising of the crops and the conditions that determine what feeds shall be raised and what purchased.

The student first learns the fundamental principles of animal nutrition, then the application of these principles to the general feeding of animals under average conditions. Lastly he takes up animal feeding under the special Colorado conditions of climate and the feeds that are best adapted for cultivation and feeding in this State. The subject is carried over into the Senior year, and during that year the student spends several weeks on the most interesting study, the application of these principles of the feeding of farm animals to the feeding of human beings. He learns the proper feeding for the best hard mental labor, and how to make a ration suited to the champions on the athletic field. The whole subject of animal feeding is abundantly illustrated by charts, tables and museum specimens of feeds, forage plants and cereals.

But the dairy side is not neglected. The student will find here a choice herd of registered Jerseys, the milk of which is handled by the students in the College Dairy Department. A new gasoline engine



furnishes the power for running the separator and churns. A new Ideal tester and Bausch and Lomb centrifuge has recently been added to the equipment. A pasteurizer, especially designed and made for the department, aids in giving the students a knowledge of that branch of dairying. Well-equipped microscopes, sterilizers, incubators and all the other necessary equipment for the study of bacteriology have lately been added to the department. It is the intention to give special training along this line of dairy bacteriology that the students may understand and be able to control these tiny organisms which may be so beneficial or so harmful to the dairyman. In the course of this regular work the student is taught the good and bad points of dairy and meat cattle, and to study the methods of scoring them according to the accepted standards of the breeds.

Dairying is taught in the Senior year both from text-book and by actual practice in the College dairy. The Dairy Department is supplied with the best modern apparatus for handling milk by either separator or deep cold setting process; churns and butter workers, both separate and combined, and full sets of apparatus for the testing of milk by the rapid, cheap, and easy modern methods. The student learns the use of all of these by actually handling the milk from cow to butter tub, and also learns the methods of valuing milk and of paying for milk according to test.

In addition to the course in Dairying in the regular four years' agricultural course, the young women of the Ladies' Course take the laboratory work in Dairying during their Sophomore year.

In the Senior year the subject of Bacteriology is considered, more particularly with reference to the part that the bacteria play in the dairy. The student learns which bacteria are his friends and how to get the best results from them; he also learns how to decrease or overcome the bad effects of the injurious bacteria. Some time is also devoted to the relation of bacteria to human beings.

The organic law of the College requires that all students devote part of the afternoon to hand work either in the laboratories or on the farm or garden. The work on the farm begins in the Sub-Freshman year and is carried on through portions of the Freshman, Junior and Senior years. The aim, in all of the work, is to teach the student not merely the operations of farming and the handling of farm implements, but the principles that underlie the first, and the handling, care and repairing of the second. He studies the draft of farm tools,

the measurement of water, stock judging, and the scoring of beef cattle, dairy cows and draft horses. In the Freshman year part of the time is spent in the dairy laboratory as a preliminary to the more extended work of the Senior year, while in the Junior year the student makes a special study of the experiments that are being conducted on the farm.

This department also possesses a well-equipped photographic dark room and a fine camera and lens of the best make. This is especially useful in securing photographs of plants and crops, live stock, implements and classes at work, valuable for classroom illustration, cuts for bulletins and other matter requiring living illustrations of the actual work being done at the College.

It will be seen that the four years' Agricultural Course is designed to give the student a thorough knowledge of the principles and practices of Agriculture and at the same time to provide enough training in other branches of learning to furnish a well-rounded education that shall fit him for the general affairs of life.

## HORTICULTURE AND BOTANY.

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WENDELL PADDOCK, M.S.

FRED M. ROLFS, B.S.

HENRY H. ORTH.

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### HORTICULTURE.

The study of horticulture is begun in the winter term of the Junior year and is continued through three terms.

An effort is made to give practical instruction in horticulture as far as the variation in the climate and other conditions of the State will permit. On the other hand great stress is laid on imparting to the student a thorough knowledge of the scientific principles which are the foundation of the art. Methods necessarily differ greatly in the various sections of the State, but with a knowledge of the principles of horticulture the student should be able to adapt himself to the conditions of the locality in which he may be located.

**PRINCIPLES OF PLANT CULTURE.**—The phenomena of germination are first considered, the subject of the relation of the plant to its surroundings is taken up and includes a discussion of soils, cultivation, fertilization, moisture, heat, cold, etc. The propagation of plants is discussed at length. This includes the propagation by seeds, cuttings, layers, buds and cions. The latter part of the term is devoted to a study of the principles of vegetable growing.

During two-fifths of the term the students work two hours each afternoon in the laboratory. Here they are given practice in making cuttings, potting plants, mixing soils and general greenhouse work; budding, grafting, making the various spraying mixtures, etc.

The course extends through the fall term of thirteen weeks and is required of the Juniors in the Agriculture, Civil Engineering and Ladies' Courses.

**THE PRINCIPLES OF FRUIT GROWING.**—During the winter term of thirteen weeks the Agricultural Juniors take up the study of fruit

growing. The theory and practice of orchard management is considered in detail. The following topics are among those discussed: Preparation of the soil for an orchard, when to plant, trimming the trees, choice of varieties; cultivation, fertilization, pruning and spraying of the orchard; harvesting and marketing the crop. Each of the fruits that are commonly grown in the State is considered more or less in detail as its importance demands.

The latter part of the term is devoted to a study of the principles of crossing, hybridizing and plant breeding.

**PLANT PHYSIOLOGY.**—The study of plant physiology as related to the practical operations of horticulture is designed to give the student an understanding of why certain things are done and how the results are attained. The subject is considered from the horticulturist's standpoint and must be preceded by the course in plant histology. With a knowledge of the minute structure of plants the student is ready to understand how roots, stems and leaves perform their work, and to give a scientific explanation of the various horticultural operations.

**LANDSCAPE GARDENING.**—This subject is taught in the first half of the fall term of the Junior year and is required of the students in the Agricultural and Ladies' Courses. The principles of landscape gardening are taught as a fine art. The purpose of the course is primarily to impart to the student an idea of good taste in arranging and planting home grounds. Then the subjects of parks, cemeteries and school grounds are considered. Other topics discussed are the position of the house, the location of walks and drives, making lawns and their care. Particular attention is given to the grouping of shrubs and the use of flowers on the lawn. A study of the trees and plants growing on the campus is also made a feature of the work.

The different topics are illustrated with the aid of the stereopticon. Thus the contrasts between good and bad planting are presented graphically to the student, as are the other topics that are discussed.

## **BOTANY.**

Three terms are devoted to the study of botany. The subject is taught from living specimens as far as possible, the text-book is used for reference, but is resorted to for classroom work only when suitable material for study cannot be obtained.

**STRUCTURAL BOTANY.**—Required of all students in the fall term of the Freshman year taking the Agricultural, Mechanical, Ladies' and Civil Engineering Courses. A study is made of the various plant organs, their relation to each other and to the plant. Two weeks are devoted to seedlings, then the roots, stems, leaves and fruit are taken up in turn. While an attempt is made to follow an outline, greater stress is laid on developing the powers of observation. The student is trained from the beginning to investigate and to give reasons for his conclusions.

**SYSTEMATIC BOTANY.**—This is a continuation of the work begun in the fall, as outlined above. Dissecting microscopes are supplied and the student draws and describes accurately what he sees. A short time in the latter part of the term is devoted to the classification of plants.

**PLANT HISTOLOGY.**—During the winter term the Agricultural Juniors devote two hours a day to the study of the minute structure of plants. The student learns to use the compound microscope to make sections and to investigate. The agricultural side of the subject is made prominent and the course is made the foundation of the study of plant physiology, which is taught as a horticultural study in the Senior year.

The laboratory is well equipped with apparatus necessary for advanced work in botany.



## MECHANICAL ENGINEERING.

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J. W. LAWRENCE, B.S.

L. D. CRAIN, B.M.E.

A. P. GREENACRE, B.S.

WILLIAM GARBE.

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GENERAL STATEMENT.—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops and experimental laboratory. The studies of this course, which are in common with other courses, are enumerated and described elsewhere in this catalogue; the others are:

Drawing.

Carpentry and Joinery; also wood-working machinery.

Pattern making and foundry work.

Forge work.

Machine and vise work in metals.

Principles of mechanism.

Strength of materials.

Boilers.

The steam engine.

Machine design, machinery and mill work.

DRAWING.—Free-hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems; orthographic and isometric projections and projection of shadows; development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings.

Students are taught how to make careful tracings from their drawings, and from these tracings how to make copies by the blue process; the black process is also taught. Considerable copying of machinery from good examples is required; there are in the drafting room for this purpose, working drawings from prominent manufacturers, and from the engineering department of the United States Navy.

The students receive careful instruction in lettering working drawings, so that in addition to being skillfully lettered, they shall be easily read and understood. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

**CARPENTRY AND JOINERY.**—The classroom work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

For the purpose of classroom illustration, the department possesses a good collection of models of the various joints used in timber work in building construction. The strength of various timber joints used in building construction is considered.

**PATTERN-MAKING AND FOUNDRY WORK.**—The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in the foundry, the proper construction of core boxes and the various materials from which they may be made. Core mixtures, core making, baking and finishing, receive careful consideration. The subject of core ovens is considered with reference to their form, construction and management. Various types of cupola furnaces are discussed, methods of lining, introduction of the blast, the placing of tapping and slag holes, different forms of tuyeres.



FORGE WORK is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening and annealing.

MACHINE WORK AND VISE WORK are taught in a similarly thorough and careful manner.

PRINCIPLES OF MECHANISM are studied with reference to the combinations of which machines are composed, and the study of designs for the communication of motion by means of gears, belts, links, etc., methods of designing parallel motions, quick return motions and cone pulleys. The adaptation to the formation of gear teeth of the involute, the epicycloid, the logarithmic spiral, and other curves, form an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. In many cases they were constructed by the students from their own designs.

STRENGTH OF MATERIALS is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns and other structural pieces, tests are made of chains, ropes, cables, solid bars and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws, and strength of bricks, stones, marble, etc.

MACHINE DESIGN is taken up for one term, and the students make designs for screws, bolts, nuts, gears, and complete machines, such as arbor presses, drill presses, lathes, engines, etc. In this connection the students make use of classroom notes, reference books, and notes and sketches made by themselves from their experimental work and their reading.

BOILERS.—The various forms are carefully studied from the best authors.

The College possesses four steam boilers, to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples, obtained from different sources, of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings, and a large collection of parts of boilers showing conditions incident to boiler management. Injectors, pumps, condensers, feed-water heaters and economizers receive special consideration and are thoroughly investigated.

Chimney draft and mechanical draft are studied and compared with regard to their relative efficiencies.

THE STEAM ENGINE is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests. Careful attention is given to the study of valves by means of the Zeuner diagrams. Compound and condensing engines are studied with reference to steam distribution and the proper proportion of the various parts. The thermodynamics of the steam engine is studied in the Senior year.

There are four steam engines at the College which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These, with what has already been named, form a desirable equipment for the use of the students.

Three of the steam engines are provided with Prony brakes. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was made for the Department, and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

MACHINERY AND MILL WORK receive attention, and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied. Important engineering developments, as they occur, are discussed in the classroom in connection with the studies to which they relate.

Students are expected to read the current technical literature, and for their accommodation the College library is well supplied with the best engineering papers and magazines.

The shops in connection with the Mechanical Engineering Department are places where principles and operations may be more readily laid hold of and permanently acquired, than any bare demonstration of the classroom could accomplish.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

## COURSE OF LABOR.

|                             |          |
|-----------------------------|----------|
| Bench work in wood.....     | 13 weeks |
| Wood-turning .....          | 13 weeks |
| Pattern-making .....        | 13 weeks |
| Moulding and casting.....   | 13 weeks |
| Iron and steel forging..... | 13 weeks |
| Machine work in metals..... | 13 weeks |
| Vise work in metals.....    | 13 weeks |

## BENCH WORK IN WOOD.

This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First, the use of planes in joining, smoothing and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle. Instruction is given in making glued joints, inlaid and scraped surfaces.

Students usually work from drawings. Cases, benches, boxes, foundry flasks and a variety of other useful articles are made.

**MACHINE WORK IN WOOD.**—In connection with this course, with the use of tools, is given the most rapid and economical method of selecting and preparing the wood for the machine. There are given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools, and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five-horse power vertical steam engine complete in all its details, a number of drafting tables, boring bars, gears, vises, bells and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.

**PATTERN-MAKING AND FOUNDRY WORK.**—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft and the

best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There are given examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where moulds and cores are made and castings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the moulds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass and other metals and alloys are made for vises, drafting-tables, dynamos, steam engines, engine lathes and other things needed.

**FORGE WORK.**—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are put to a practical use. Lathe, planer and shaper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers and all bolts, braces and such other iron and steel work as may be needed.

**MACHINE WORK IN METAL.**—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals; centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work. Every shop exercise is graded and marked in the same manner as a classroom recitation, each piece of work being regarded as of educational value.

**PRACTICAL MECHANICS.**—For those whose time and means are limited, a short course in practical mechanics is provided. This course covers practically the work of the Freshman and Sophomore classes.

The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manufacture



salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of how a tool or machine should be used, and the *manner of laying out work* for it, are thoroughly taught.

Such circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by his training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

TOOL-ROOM SYSTEM.—There is a well-arranged tool-room, fitted up with a check system designed to accustom students to order and neatness and the names of the tools in use.

THEORY AND PRACTICE.—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by, the most practical application of the same in all ways. In every instance where it is possible the work of the classroom is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.

## CIVIL AND IRRIGATION ENGINEERING AND PHYSICS.

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L. G. CARPENTER, M.S.

R. E. TRIMBLE, B.S.

JAMES A. STUMP, B.S.

AMOS JONES, B.S.

WM. R. HEADDEN, B.S.

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### PHYSICS.

The study of physics is begun in the winter term of the Sophomore year, continued through the remainder of that year and completed in the Junior year. Laboratory instruction is given in the afternoons, two hours daily for one-half the time devoted to classroom instruction. In the laboratory work, the intention is to acquaint the student, in an experimental way, with some of the simple phenomena discussed in the classroom; to lead him into accuracy of measurement of the various physical quantities, and to give him a realization of the problems and care arising in active measurement of physical constants.

ELEMENTARY PHYSICS.—One term is given to Elementary Physics; the course being intended as a review for those who have had some previous instruction in the subject and as a general basis for more detail study for those who have not before studied the subject. For those who come prepared in Physics with the ordinary high school course, this one term's work may be substituted.

ELECTRICITY.—In the last term of the Sophomore year the whole term is devoted to Electricity. Thompson's *Lessons in Electricity and Magnetism* is used as the text-book. The laboratory work is directed toward getting a command of the means of measurement in electricity and to get exact ideas.

**MECHANICS.**—In the first term of the Junior year, the young men take up the subject of Mechanics, in which special attention is directed towards obtaining correct ideas of the fundamental relations in Mechanics. With proper problems and with the laboratory work in connection, this course is intended as the basis for the work of the Engineer or any one having to deal with Force, and its applications, and Heat.

**HEAT.**—A short course equivalent to one-half term is given to the ladies in the first term of the Junior year. The discussion of Heat, as it relates to the applications and its uses in Domestic Science, are especially treated.

The following is a selection from some of the recent laboratory exercises:

Exercises in exact measurement with micrometers and spherometers.

Exercises in weighing.

Investigation of the sensibility of the balance.

Testing the parallelogram of forces experimentally.

Determination of the acceleration of gravitation by the pendulum.

Investigation of the temperature correction of an aneroid barometer.

Comparison of thermometers with standard; testing boiling and melting points.

Measurement of heights by barometer.

Determination of difference of potential.

Construction of a working telephone.

Exercises in electric wiring.

Measurement of internal resistance of batteries.

Determination of battery E. M. F.

Measurement of wire resistance.

Electro-plating.

Determination of densities.

Measurement of candle power of sources of light.

Determination of focal strength of lenses and mirrors.

**METEOROLOGY.**—A course extending through one-half of the fall term is given. This includes a discussion of methods of taking observations, study of movements of storms, and their laws, weather forecasts, etc. This is aided by the extensive records at the College, and the collection of daily weather maps extending over a number of years.



## COURSE IN CIVIL AND IRRIGATION ENGINEERING.

**GENERAL STATEMENT.**—In the last two years of the College course, special training is given to those students selecting the Civil and Irrigation Engineering Course, in the fundamentals of these professions. Land Surveying with field practice is taught in the Sophomore year. In the Junior and Senior years, while the studies designed for general training are continued, special instruction is given in engineering and in establishing the mathematical basis for such work. More than usual attention is given to hydraulics and to engineering applied to irrigation problems. Training is given in water measurements and in the problems relating to irrigation, so as to furnish the students the foundation for service as canal superintendents, water commissioners, etc.

Field work is carried on throughout the course and considerable time is devoted to giving the student familiarity with all the instruments ordinarily used in engineering. A special set of exercises has been prepared designed to give skill in adjusting and using the instruments. The Department has a large collection of engineering instruments, including transits, compasses, levels, rods, tapes, current meters, sextant, plane-table and various other apparatus. In the Hydraulic Laboratory are tanks and scales for measuring and experimenting on the flow of water over weirs and through orifices of various kinds; current meters of various patterns for stream gauging; water registers for studying the flow of water; water motors, etc. The Laboratory is also provided with a Fairbanks Cement Tester for testing the strength of cement, and a Testing Machine capable of making tests, transverse, tensile and compressive, up to a limit of 50,000 pounds.

There is also available, belonging to the Department and to the Professor of Civil Engineering, collections of photographs and plans of engineering and irrigation structures in Colorado and other states of the Union, as well as in Spain, Italy, France, Algeria, Egypt, India and Australia. In the present condition of Irrigation Engineering these collections are especially useful. There is also a large collection of lantern slides for use with the stereopticon.

**HIGHER SURVEYING.**—One term in the Junior year is given to instruction in higher surveying. This is a continuation of the course in the Sophomore year, which is devoted to land surveying, the com-

pass and leveling. This is accompanied and supplemented with field work for a large part of both the Junior and Senior years. As the transit is one of the most important instruments for the engineer to be skillful with, nearly all the work of the Junior year is in its use, in acquiring skill in its manipulation, and accuracy in its use. The field work of the Senior year is given to more extended operations, to which the topography of the neighborhood is well adapted.

**IRRIGATION ENGINEERING.**—In addition to the bearing which much of the work has upon this subject, some time is given particularly to the study of canal and reservoir engineering, construction of diversion dams, the duty of water, canal management, flumes and fluming, weirs, problems in canal maintenance, etc. The location of the College in one of the best irrigated valleys in the United States, with its large and well constructed canals and storage reservoirs, gives excellent opportunities for this study. A large number of photographs and plans of irrigation works has been collected and is in constant use.

**THE MATERIALS OF ENGINEERING.**—One term in the Senior year is given to the theory of the resistance of materials and to the study of the different materials commonly used in engineering construction, including brick, stone, wood, iron and steel. Exercises with testing machine familiarize students with the peculiarities of these materials.

**RESERVOIRS AND DAMS.**—In view of the present and prospective importance of storage reservoirs in the West, a course of six weeks is given especially to this subject.

The principles of the construction of dams, both earthen and masonry, and the computation of their stability, are taught; also the causes of the failures of dams, illustrated with photographs and lantern views of many dams. The large reservoirs located within a few miles of the College give convenient means for practical illustration.

**AGRICULTURAL HYDRAULICS.**—This course, covering one term, is intended to include a general discussion of irrigation, its history, and the conditions rendering it necessary or profitable; principles of irrigation; laying out of grounds or farms for irrigation, and questions of duty of water, seepage, water rights, canal administration, etc.

The students of the Civil Engineering and Agricultural courses receive instruction in this subject. The Junior and Senior classes are combined. The work is taken each alternate year.

**HYDRAULICS.**—A course in hydraulics, giving instruction in the theory of hydraulics, the principles of weirs and the flow through orifices, and the flow in canals and open channels, is given in the spring term. This course is given every other year, alternating with the course in Agricultural Hydraulics.

**DRAFTING.**—Instruction is given to the Juniors and Seniors in the Civil Engineering course. The instruction in this department more especially covers the technical instruction as it relates to these branches of engineering. Practice is given in drawing structures, as drops, headgates, dams, flumes, etc., and bills of material and estimates of cost are required.

**FIELD WORK.**—Instruction extends throughout the Junior and Senior years. In the Sophomore year the students become familiar with the chain, compass and level; in the Junior year additional practice is given with the level and work with the transit is taken up. The expectation is that at the end of that year the student will have such command of this instrument that the exercises in the Senior year will be devoted to other than to those for practice in the use of the instrument; to topographical work, surveys of reservoirs and dams, use of the sextant, etc.

In 1900, a field party was organized which moved into the mountains, to an elevation of over 9,000 feet, and covered the surface extending from 7,500 feet to near the top of Long's Peak, an elevation of over 14,000 feet. This is designed to be made a regular part of the Civil and Irrigation Engineering course in subsequent years, and each student in that course will be required to take part in this field survey. The Seniors will take charge of the parties and larger instruments; the Juniors will act as rodmen and in other positions. The practice under field conditions is considered to be one of the most valuable parts of the field practice, both in getting an idea of actual field work and in working under field conditions.

Students occasionally have opportunity for outside work, and where this is accepted by the instructor, it is taken in lieu of certain portions of the instructional work. Sometimes the demands are more than members of the class care to take advantage of.

**OTHER COURSES.**—Sometimes other courses, as in Sanitary Engineering, Railroad Engineering, Roads, Contracts and Specifications have been given. Whether these are given depends on the demand and on the advancement of the class. They will not be given for less than a certain number of students.

**SHORT COURSE IN IRRIGATION ADMINISTRATION.**

Early in April a short course intended to help those who have to do with the administration of water, either as canal officers or water commissioners, was given. It extended over two weeks. It is designed to repeat this next year earlier in the winter, at a time when these officers are able to get away. The course includes a discussion of the measurement of water in streams and canals; the use of the current meter; the measurement of water from canals; methods of canal administration; and problems of management of canals and water districts. Besides the Professor of Irrigation Engineering the course was aided by State Engineer McCune, the head of the State distribution of water; Ex-State Engineer Field, Water Superintendents Armstrong of Denver, and Staley of Hooper; Water Commissioners Dalton of Manassa, and Shue of Ouray; P. J. Preston, Superintendent of the Fort Lyon Canal; Hon. J. W. McCreery of Greeley, and others. Hon. H. N. Haynes, of Greeley, discussed the laws relating to public officers having to do with the distribution of water.



## PHYSIOLOGY, ZOOLOGY, AND ENTOMOLOGY.

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C. P. GILLETTE, M.S.

E. D. BALL, M.S.

E. S. G. TITUS, B.S.

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**PHYSIOLOGY.**—This subject is taught during the Fall and Winter terms of the Sophomore year, Martin's *Human Body* (unabridged edition) being used as a text-book.

The Department is equipped with a *papier mache* manikin showing the position, size and shape of the organs of the body; also Auzoux models of the heart, brain, larynx, eye, ear, etc. A series of skeletons, including three human and many of the lower vertebrates serve for the study of comparative anatomy.

During the first six weeks of the Fall term, two hours are spent each afternoon in laboratory work. Two weeks are spent in a study of human and comparative osteology. The student first makes himself familiar with the bones of the human body and then compares the skeleton of man, part by part, with the skeletons of other animals. Another two weeks are spent in the study of human histology. Preparations of the tissues of the body are furnished the student who studies them under the microscope until he understands their structure, and then he is required to make drawings showing the parts properly labeled. The last two weeks are spent in dissecting animals that have first been killed by the use of chloroform. In this work the position, size and appearance of all the more important organs of the body are studied and compared with the corresponding parts in man. In this manner the student obtains a practical knowledge of the anatomy of man, and at least one of the lower animals that he could not get through a mere study of books.

Microscopes, dissecting tools and all needed apparatus are furnished the student without expense to him.

**ZOOLOGY.**—This study is taken during the Winter term of the Junior year by all the students of the Agricultural and Ladies' courses. It is taught in two consecutive class periods each day by means of lectures in connection with laboratory work. Typical forms of the animal kingdom are furnished the student, who is taught to rely as much as possible on his own powers of observation in the study of the specimens placed before him. As some vertebrate zoology is taught in connection with the physiology, in the Junior year, the instruction is chiefly confined to the invertebrates.

There is a good museum in connection with the Department in which are classified representatives of the different groups of the animal kingdom, to which the student has access at all times on school days. The collection is particularly good in insects, crustacea, mollusca, corals and sponges, and there is a good number of native birds and mammals and a classified collection of birds' eggs.

**ENTOMOLOGY.**—The Juniors in the Agricultural and Ladies' courses take Entomology in the Spring term. Smith's *Economic Entomology* is used as a text-book and two hours a day of laboratory work are required of the young men during the first two-fifths of the term. The student is first taught insect anatomy through the study of a few type forms and is then instructed in the characters that distinguish the different orders. He is also required to make a classified collection of insects representing, if possible, all the orders.

Special stress is placed upon the economic features of the subject. The student is taught to recognize the beneficial insects and to distinguish them from those that are injurious. As far as the time will permit the species that are injurious to orchard, garden and farm crops and to domestic animals are considered singly and their habits and the methods of destroying them are discussed. The students are also taught to prepare and apply the leading insecticides.

As means of illustration and aids in the pursuit of this study, the College has a collection of classified insects numbering more than 50,000, a good library, and all necessary microscopes and laboratory equipment. Those wishing to make a special or advanced study of the subject of Entomology in a general way or along special lines, will be encouraged to do so, and will be given all possible aid.



## CHEMISTRY AND GEOLOGY.

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WM. P. HEADDEN, A.M., PH.D.

L. A. TEST, B.M.E., A.C.

F. C. ALFORD, B.S.

EARL DOUGLASS, B.S.

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**CHEMISTRY.**—The prescribed course of study in this subject is taken by the students of all courses. It has been planned to include no more of the science than is advisable for a collegiate course, the object being to present the principles of the science and such facts as are necessary for a reasonably thorough understanding of these principles.

The means employed in giving instruction are recitations, lectures and laboratory practice. Our aim is to give the student the benefit of the discipline of the recitation system, the illustration of the lecture and the inductive system of the laboratory. The object aimed at is wholly educational and is included in an acquaintance with the scope and character of the science, the necessity of a clear perception of facts and an exact statement of the same; also the importance of neatness and exactness. The latter are obtained by requiring all experiments to be done quantitatively, first requiring the student to calculate the result which should be obtained, and testing his work by the agreement of the actual results with the calculated one.

Laboratory practice is not begun until the student has received sufficient instruction in stoichiometric calculation, and the general properties of acids, bases and salts, to make him to fully comprehend the simple problems given in illustration of the general principles of Chemistry.

The instruction during the first term covers the general principles of Chemistry and the Chemistry of the not-metals. The Chemistry of the metals is given by lectures. Organic Chemistry is taken up during the second term and the fatty compounds completed.

Agricultural Chemistry is taught by lectures and the text-book. Johnston's *Agricultural Chemistry*, edited by Professor Aikman, being used as a text. The lectures embrace, particularly, soil chemistry, manures and fodders.

The laboratory practice is the same for students of all courses up to the completion of the qualitative analysis; from this point on the work is adapted to the objects the student has in view and to his proficiency. While the student's wishes are considered, the selection of the work is made by the professor in charge.

No instruction is given in assaying, as this line of work lies without our province and is provided for by other State institutions.

The laboratory is well lighted, heated and ventilated; it is supplied with all that is necessary for a very extended course in qualitative and quantitative analysis. For fuller description, see Buildings and Equipment.

GEOLOGY.—Two terms of the Junior year, the Winter and Spring, are devoted to this study. The relation of geology to the soil is more fully discussed in the Spring term of the Senior year in connection with Agricultural Chemistry. Elementary Geology is taken up in the Winter term of the Junior year and systematic Geology in the Spring term.

The illustrative material at our command is fuller than usual and of most excellent grade. Of lithological material, we have about nine hundred specimens of good cabinet size,  $3 \times 4\frac{1}{2}$  inches, representing all the important classes of rocks and many of the varieties. This collection of rocks is supplemented by a good working collection of the most important rock-forming minerals, and a small collection of sections serving to show the microscopic structure of the various classes of rocks and the optical properties of their component minerals. Economic Geology is represented by collections of ores, of which those of iron, lead and silver and copper are representative, and further by a large collection of ornamental materials, marbles, serpentines and porphyries. This collection consists of polished specimens. Many of them are large and all of them choice, making a very beautiful and attractive collection. Historical Geology is represented by a collection of seven hundred and fifty fossils and forty casts. These fossils illustrate the life of every geological age and period. Those of the Mesozoic and Cenozoic are, for the greater part, foreign, while those of the Paleozoic are mostly from American localities.

## DOMESTIC SCIENCE.

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THEODOSIA G. AMMONS.

SARAH T. SUTHERLAND.

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The establishment of the Department of Domestic Science in the Colorado Agricultural College was the outgrowth of the conviction that the education of a young woman is no more complete without training in the domestic arts and underlying sciences than is the education of a young man without training in the practical arts of life.

Knowledge is an excellent thing; but knowledge and the acquired skill to apply that knowledge are infinitely better. To know what to do is important; to know the same thing, and in addition to have skill in doing it, is reaching out and taking hold of the best.

Thus committed to the doctrine that true education should include, and in fact does include, culture of the moral and mental powers in connection with the practical training in the industrial arts, the State Board of Agriculture illustrated its theory in the founding of this Department in June, 1894.

The following Fall witnessed the opening of the old Horticultural building under a new name with a purpose of making this feature a great success.

The appreciation of this work is manifest in the fact that since its introduction the number of young ladies in the College has more than doubled. Since the majority of young ladies will be homemakers, this subject is of paramount importance. Through this training that which seemed drudgery is transformed into an attractive, elevating and very useful art.

The course includes five terms of lectures and classroom recitations, as follows:

I. HYGIENE AND SANITATION.—This subject is taken up at the beginning of the Winter term of the Sophomore year. The text-book used is a collection of *Public Health* essays relating chiefly to the home and school, and are classified in this way:

1. Study of the Home.
  - (a) Selection of location.
  - (b) The building of the home, from foundation to attic, including materials used, the plumbing, heating, lighting, ventilation, etc.
  - (c) The surroundings: lawns, trees and shrubbery; emphasizing sanitary and hygienic conditions.
  - (d) Furnishing the home for the purposes of convenience, adornment and the happiness of the inmates.
2. The Use of Disinfectants.
3. Individual Prophylaxis Against Disease.
4. School Hygiene.
5. Foods.
6. Preventable Causes of Disease.

II. EMERGENCIES, CONVERSATION, ETC.—During the Spring term of the Sophomore year the leading aim is to teach self-reliance, presence of mind, an interest in general subjects, and to train the student to express herself concisely, intelligently and entertainingly.

The scheme is varied for each day in the week. On Mondays the subjects always relate to the human organism. For instance, the skin is studied under the divisions of Functions and Care. Tuesdays are devoted to emergencies. To illustrate: One subject taken is the Resuscitation of the Apparently Drowned. In all cases of accident a physician should be called, but the attendant may be of great use while the physician is coming. On Wednesday each young woman is required to prepare for the class an item of interest that belongs to the general subject of Home Science. Tuesday or Thursday is given to written work, an emergency always alternating with the former. The lesson for Friday morning is one of great importance. Some subject for discussion is announced one week in advance, with a member of the class as leader. For twenty minutes the one in charge presides; then the instructor takes the chair and recapitulates, adding and modifying wherever necessary.

Since the art of conversation has been very much neglected in recent years, the young ladies appreciate this opportunity of giving special attention to so valuable and cultivating a subject, particularly since it is absolutely indispensable in the well-ordered home.

III. CHEMISTRY OF COOKING AND CLEANING.—In the Fall term of the Junior year the subject considered is the Chemistry of Cooking and Cleaning. The practice of cooking can not be carried on success-



fully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The work of this term tends to lift the veil of mystery from many kinds of housework, and to fill the mind of the student with a broader conception of her sphere as a homemaker. Moreover, the actual performance of the labor is materially lessened when these subjects are properly understood.

IV. SCIENCE OF NUTRITION.—During the Winter term of the Junior year the Science of Nutrition is studied with Atwater's *Chemistry and Economy of Food*. Bulletin No. 21, of the Office of Experiment Stations, Washington, D. C., is taken as the basis. Much supplementary reading is required, and the study of dietaries is made an important feature of this division.

V. HOME NURSING.—At the opening of the Spring term, Weeks's text-book on nursing is placed in the hands of the class, and as thorough investigation and study as are possible without clinical practice is carried forward. In all of these lines attention is given to the subject of micro-organisms, as the knowledge of them and their functions is variously related to the matters under consideration.

SEWING.—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery and millinery. Everything is done systematically and methodically, and not for a moment is sight lost of the high educational value of this training. Special instruction is given in dress-making. Notwithstanding the fact that no student is required to purchase material for sewing, it is invariably done, because in so doing she is entitled to the product of her labor.

THE KITCHEN.—The work in the kitchen laboratory includes the study of foods, with practice in all kinds of cooking and laundering. How to serve food; the care of the table linen; the arrangement of dining tables for all occasions, and how to make all kinds of food serve their best purpose at the least cost, are among the subjects considered.

HOUSEKEEPING.—Since the building in which Domestic Science is taught is furnished, as far as possible, as a home would be, actual work in housekeeping is carried on. Sweeping, washing of wood and glass, as well as dusting, form a part of each student's duties.

GENERAL TOPICS.—A lecture is given on each Monday afternoon on some topic relating to the care of the house, clothing, or person; social duties; customs of good society and anything that will aid in the development of a perfect womanhood.

## MATHEMATICS.

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E. B. HOUSE, B.S., E.E.

R. H. HESS, B.S.

R. A. MAXFIELD, B.S.

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GENERAL STATEMENT.—The course in Mathematics is full and complete. The different subjects are taken up in logical order as rapidly as the student has fitted himself for them. The courses offered are the following:

Sub-Freshman—Elementary Algebra, three terms.

Freshman—Plane and Solid Geometry, three terms.

Sophomore—Algebra, two terms.

Plane Trigonometry, one term.

Junior—College Algebra, one term.

Analytical Geometry, one term.

Differential Calculus, one term.

Senior—Integral Calculus, one term.

ELEMENTARY ALGEBRA.—This subject is pursued during the Sub-Freshman and Sophomore years. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of Arithmetic by the notation of two sorts of quantities directly opposite in character, and the conciseness obtained by the use of literal notation. He is taught the fundamental operations of addition, subtraction, multiplication and division and also the methods of solving simple equations containing one unknown quantity. Subsequent work during the next two terms acquaints him with factoring, common factors and multiples, fractions, fractional equations, simple simultaneous equations containing two and three unknown quantities, involution, evolution, theory of exponents, radicals and imaginary expressions. The text-book used is Wentworth's *New School Algebra*, and the work in the Sub-Freshman year extends to quadratic equations. This subject is continued in the Sophomore year. Two terms of this year are devoted to it.



During this time the student finishes the work in Elementary Algebra, taking the entire subject of quadratic equations, ratio and proportion, progressions, properties and series, the bi-nominal theorem, logarithms, and as much more as may be possible in the time allowed. During this year the work as given in Wentworth's *New School Algebra* is finished.

GEOMETRY.—This subject is taken up at the beginning of the Freshman year and in the three terms given to this study the student is given a thorough, practical acquaintance with the construction of geometrical figures. He also takes up formal proof and is lead to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience. He is also given thorough practice in the mensuration of geometric magnitudes. So far as time and ability of the student will permit, he is practiced upon original exercises. The year's work covers the whole of Wentworth's *Plane and Solid Geometry*.

TRIGONOMETRY.—This subject is taken up in the Sophomore year, and during a term's work in it the student is advanced through Wentworth's *Plane Trigonometry*. He is given clear ideas of the trigonometrical concepts, shown their relation and given considerable practice in the practical application of this branch of mathematics.

At this point all students in the Agricultural and Ladies' courses discontinue their mathematical studies. From the wide application of mathematics to all branches of engineering, those students electing either of the courses in engineering continue their mathematical studies throughout their entire course except the last two terms in the Senior year.

DESCRIPTIVE GEOMETRY.—This subject is taught to the students of the engineering courses for two terms during their Sophomore year. The principles of projection, intersection, development, etc., are discussed and illustrated by a great variety of problems, all of which are accurately worked out on the draughting-board by each student.

COLLEGE ALGEBRA.—For one term in the Junior year the student is given a brief review in quadratics and radicals, and takes up the algebraic principles known as *Higher Algebra*. Among the subjects considered are, choice and chance, theory of numbers, variables and limits, series, theory of equations, and various methods of solution of equations of the third and higher degrees.

**ANALYTICAL GEOMETRY.**—This subject is taught during the Junior year. Wentworth's *Analytics* is the text used, and the student is made acquainted with the method of co-ordinates and the connection between algebraic and geometric forms. The fundamental properties of conic sections are developed and as much more of the subject as time permits.

**CALCULUS.**—The Spring term of the Junior and the Fall term of the Senior year are devoted to the study of the Differential and Integral Calculus. Taylor's *Differential and Integral Calculus* is the text-book used, and the subject is pursued as there developed. The notation of limits is, however, made the logical basis upon which the subject is developed.

The Department is provided with a set of Schroeder models from Darmstadt, and with models of warped surfaces, etc., for the purpose of illustration in the study of geometry. There is also a set of drawings for the use in the study of curves and curve tracing.

The purpose of instruction in this Department is two-fold: first, to give the student clear and exact ideas of magnitude and their measurements; and second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

## RHETORIC AND PHILOSOPHY.

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EDWARD M. TRABER, A.B.

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### RHETORIC.

So long as man communicates his thoughts and feelings to his fellowmen, so long will language have a practical value. The man who speaks in a slipshod, bungling manner, comes far from communicating his thoughts to others. A college man, above all others, must depend upon himself alone for the correctness and the elegance of his speech; for the more valuable is his thought, the greater his need for a clear and effective use of language.

The aim of the following course in Rhetoric and English Composition is, in general, twofold: (1) To train the student in the theory and the practice of English Composition; and (2) by the study of the fundamental principles of style, to aid him in an intelligent appreciation of literature.

COURSE I. *Elementary Rhetoric and Composition*.—This course extends daily throughout the Sub-Freshman year. The classroom work is divided equally between theory and practice. Herrick and Damon's *Composition and Rhetoric*, Strang's *Exercises in English*, and Webster's *Academic Dictionary* are the required text-books. Composition work carefully encouraged, exercises along some written work almost daily. Students are drilled to correct their own mistakes. Before entering upon this course, or upon any later course, students must prove their unquestioned acquaintance with technical English Grammar.

COURSE II. *Rhetoric and Rhetorical Analysis*.—This course follows the *Elementary Rhetoric and Composition* of the Sub-Freshman class, which is a prerequisite. Devoted mainly to the study of essay structure and the fundamental principles of the different forms of discourse. Analysis of good prose models. The text-book now used

as a guide is Herrick and Damon's *Rhetoric and Composition*. The course is given daily throughout the Winter and Spring terms of the Freshman year.

## PHILOSOPHY.

COURSE I. *Psychology*.—A course of elements and outlines of Psychology is given the Spring term of the Sophomore year, and it aims to familiarize the student with first psychological principles. Halleck's *Psychology and Psychic Culture* is used as a text-book. The course is supplemented by lectures and simple laboratory work. Five hours.

COURSE II. *Logic*.—This course is elementary, and is given the Winter term of the Junior year. It is presented through recitations, discussions, and many original exercises. The syllogism is especially and minutely worked out. A number of scientific and philosophical arguments, as well as characteristic judgments of immediate perception are studied. The aim is to bring out in a clear and practical manner both the inductive and the deductive sides of inference, and to point out some of the principles of philosophy that are involved in them. The text-book for 1900-1901 will probably be Creighton's *Introductory Logic*. Five hours.

COURSE III. *Ethics*.—This course is given the Fall term of the Senior year. The work in Ethics bases itself upon the psychological ideas acquired in the previous courses, and applies them to the analysis of character, habit, desires and ideals from an ethical point of view. Mackenzie's *Manual of Ethics* (third edition) is followed pretty closely as a text-book, supplemented by such work as may be suggested by library work.

*Latin*.—The courses in the Latin language are given for the primary purpose of affording such linguistic knowledge of the language—inflection, derivation and the meaning of ordinary root words—as is necessary to follow and to appreciate the Latin element in English, and especially to the sciences so markedly prominent in this institution.

All work in Latin is elective, the choice of the students being at all times along the line of practical utility. Since the establishment of this elective, in 1896, the following courses have been given: (1) Elementary Courses; (2) *Viri Romae*; (3) Cæsar's *Gallic War*; (4)

Cornelius Nepos; (5) Sallust's *Cataline*; (6) Cicero's *Orations*; (7) Ovid's *Metamorphoses* (2,500 verses); (8) Ovid's *Fasti*; (9) Virgil's *Aeneid* (first six books); (10) Cicero's *De Senectute* and *De Amicitia*; (11) Livy, Books i., xxi., and xxii.; (12) Terence's *Phormio*; (13) Tacitus's *Germania* and *Agricola*; (14) Plautus's *Captivi*.

Prose work based upon the Latin texts studied is continued throughout the courses. The Roman method of pronunciation is used. For set grammatical work and reference Bennett's *Latin Grammar* is used; and for vocabularies and quantities Lewis's *Elementary Latin Dictionary* is preferred.



## HISTORY AND LITERATURE.

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VIRGINIA H. CORBETT, B.L.

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### HISTORY.

The purpose of the work in history is (1) to give that information concerning the past which the intelligent citizen requires; (2) to aid the student in acquiring a scientific method of investigation and consideration of historical data; (3) to awaken an interest in the great field of history and biography which the library affords.

The following courses in history are offered:

1. HISTORY OF GREECE AND ROME.—The Fall term of the Freshman year is devoted to this course. The student is expected to have had preparatory work in United States history, and a preliminary course in general history is desirable. Extracts from the original sources are supplied by the text-book in connection with suggestive studies, and the student will be encouraged to form his own opinions and to produce proofs to support his judgments as to what Greece and Rome have contributed to the world's civilization.

2. MEDIAEVAL EUROPE.—This course follows (1) in the Winter term of the Freshman year. The plan of work is the same as that indicated for the previous course. Sheldon's history is the text used as an outline for the entire Freshman work, supplemented by lectures and library references.

3. RECENT HISTORY OF THE UNITED STATES.—During the Spring term of the Junior year the thorough study of some important epoch in the development of the United States will be pursued. This work will alternate with the Recent History of Europe required in the Senior year, the Junior and Senior classes reciting together.

4. PHILOSOPHY OF HISTORY.—This course, offered during the Winter term of the Senior year, includes study and practice in historical investigation; the laws governing human actions; reciprocal influences of religion, literature and government; comparisons and criticisms of past civilizations and their relation to modern progress.



5. RECENT HISTORY OF EUROPE.—This course during the Spring term of the Senior year alternates with the course in Recent History of the United States given in the corresponding term of the Junior year, in order that the classes may recite together. McCarthy's *History of Our Own Times* is used as a guide, supplemented by library investigation of special topics.

## LITERATURE.

It is the object of this study to lead students by direct contact with the literary masterpieces to understand the art in literature, and to develop their power of appreciating the strength and beauty of English writings.

1. AMERICAN LITERATURE.—The Winter and Spring terms of the Sub-Freshman year are devoted to this course, the purpose being to develop intelligent appreciation of American masterpieces and to promote a love for our standard literature. Several American classics will be made the subject of critical classroom study.

2. ENGLISH LITERATURE.—In the Fall term of the Sophomore year a brief historical outline of the periods of English Literature is supplemented by study of the works of representative authors.

3. ENGLISH LITERATURE.—A critical study of several English masterpieces from Milton to Tennyson is offered during the Fall term of the Senior year.

LIBRARY READING.—The College library is the laboratory of this department, and four hours per week of library reading is expected of each student in connection with all courses in history and literature. During the Freshman course in history the system of library classification is explained, and the student is made familiar with the use and location of the valuable works of reference with which our library is supplied.

By means of the stereopticon and a fine collection of views, many scenes of historic and literary interest are brought into the classroom. A valuable collection of foreign photographs also belongs to this department, by which the art and architecture of the past and present are illustrated.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illus-

trate ten periods of European history since the Christian era, and also include seven maps for the study of ancient history and excellent maps for United States history.

### GERMAN.

Opportunities for the study of German will be furnished. Such work will be elementary or more advanced according to the abilities and needs of students. The elementary work is given along the line of and in connection with Dreyspring's *Cumulative Method*, and consists of easy conversation and composition. The more advanced work takes up masterpieces from Schiller and Goethe in connection with conversation.

## SOCIOLOGY AND THE CONSTITUTION.

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BARTON O. AYLESWORTH, A.M., LL.D.

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The student needs to understand the Constitution of the United States and to yield to its democratic philosophy before he can become a worthy citizen of the nation; but he needs also to come into touch with all human conditions in all the world before he can truly become a worthy man. This is best achieved in the general science of Sociology and its special branch, Political Economy.

The great problems of state and of trade run back after all for their solution, into the deeper human relationships. To be sure, both teacher and student must constantly bear in mind that these relationships have an ideal perfection, and that the approach to them is evolutionary.

But there is no greater inspiration than to feel that the race is "fated to grow" toward liberty and unity, and that each generation more easily sights the goal than the preceding one.

The modern school of the science of government and sociology is neither radical nor conservative. It simply studies the human unfoldment of its time in the double light of history and the hopes of the race, and is greatly concerned both with psychology and ethics.

In fact, it means to conduct a sympathetic analysis of social conditions, seeking remedy where remedy may be found; prevention where prevention may issue, be it from church or state; seeking patience where both prevention and remedy are remote.

In this course Sociology is made the fundamental science; Political Economy and Government are divisions of the general science. Small and Vincent, Strong, Ely and Gladden are used as texts in Sociology, Ely in Political Economy, and Andrews in Constitution. "Current Events" is made prominent in daily recitations. The trend of modern thought is observed daily. Much original writing is required of all the students in this department. Earnest debates often spring spontaneously out of the classroom discussions. The passion for good government and for good citizenship enlarges day by day under such an environment.

## COMMERCIAL COURSE.

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C. J. GILKISON, B.S.

L. M. TAYLOR, B.S.

C. G. DWYRE.

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By action of the State Board of Agriculture taken in December, 1895, the College Faculty was instructed to so arrange the curriculum of study as to make adequate provision for a distinct department to be known as "The Commercial Course of the State Agricultural College."

A two years' course was adopted, and so wise was the selection of the studies for it that it has not been deemed necessary to make any material changes in the original curriculum, which is exhibited on pages 38 and 39 of this catalogue.

The aim of the course is to meet the wants of those who are seeking a high grade business education. It trains the student to meet the exacting demands of modern commercial life. The fact is recognized that the market is already overcrowded with young people of limited and imperfect preparation and unable to avail themselves of the opportunities of the business world.

It is not the design of the Commercial Department to educate students for a business life in the shortest possible time, but rather to train them in such manner that they may fill positions of the highest trust. Experience has clearly shown that persons of limited and imperfect training invariably fall into the lowest class of workers; while those who are well trained and educated are sought and liberally paid for their services.

The instruction of this Department articulates so closely with the work of the College that the two harmoniously blend and unite to give a thoroughly cultural as well as technical training for the higher business pursuits.

Students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advant-



age of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well-furnished museum, the College associations of all kinds, and all the elaborately equipped laboratories are open to students of the department, and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

**THOROUGHNESS.**—One of the most important features of the course is thoroughness. Herein lies the secret to success, lucrative positions and promotion. Thorough training is absolutely necessary. The student's work is examined critically and is not credited unless it is up to the required standard.

**BOOKKEEPING.**—The student is first instructed in the elements and principles of theoretical bookkeeping, both double and single entry, and as soon as he shows that he has a clear understanding of the elementary work, he is promoted to advanced bookkeeping. Here he learns to keep books in various lines of business, including mercantile, both wholesale and retail; and manufacturing. After acquiring sufficient skill in advanced bookkeeping, and passing satisfactory examinations, the student enters actual business practice; is assigned his official desk as a business man, and is furnished with a cash capital and stock of merchandise, according to the business in which he is to engage. He issues and receives every form of business paper, including checks, notes, drafts, orders, receipts, leases, articles of agreement, bills, invoices, statements of accounts, account sales, bills of lading, money orders, C. O. D. sales and purchases, and, in fact, every form and description of business paper in use. He writes and receives letters pertaining to all affairs of the business, and secures a first-class drill in correspondence. He is taught to brief and file every business paper received. His work covers the entire range of business transactions, from the simplest to the most difficult.

The office department consists of a national bank, a state bank, a wholesale and retail mercantile business, and a commission office; also facilities for a commercial exchange, and is equipped with books, modeled after those used by large concerns, which are kept by the students. The student has from six to twelve weeks' office practice before entering the final examinations.

The average student will complete the bookkeeping in one school year, after which, if capable in other directions, he will be able to do the accounting work required in any business office.

**SHORTHAND.**—It has been truly said that the practice of shorthand “draws out all the powers of the mind; it incites invention, improves the ingenuity, matures the judgment, and endows the retentive faculty with the superior advantage of precision, vigilance and perseverance.”

To meet the constantly growing popular demand for instruction in this important branch of technical education, and in response to the requirements of those worthy and ambitious young men and women who are desirous of fitting themselves for successful careers in the busy marts of the world's commerce, wise provision has been made whereby they may prepare themselves for positions in which the ability to intelligently record and transcribe their shorthand notes is rewarded by promotion to higher walks and larger spheres of usefulness, requiring a high order of intelligence.

The work is under the direction of a stenographic expert who has been in the active practice of his profession for the past twelve years. The student devotes from two to four hours daily, throughout the school year, to practice under the personal supervision of the instructor in charge. A good English education is an indispensable condition to success in the practical application of shorthand, and applicants who are found to be deficient in any of the branches usually included in a high school course are advised not to undertake the study. A certificate is awarded those who successfully complete the examinations in this subject, which include tests in grammar, spelling, punctuation, etc.

The student is afforded every advantage which accrues from attendance upon the lectures of the collegiate courses and association with the various educational influences in which the College so freely abounds. If possible, the student should enter at the commencement of the Fall term in September, in order that he may receive the full benefit of the course. Having become a master of the subject of writing by sound, the student at once enters upon the practical application of phonography to business requirements. A high standard is required for graduation.

The Isaac Pitman system of phonography is taught, although students of other Pitmanic systems may enter the classes and successfully pursue their study and practice without changing systems, and advanced students of other systems may enter the dictation classes for speed practice.



**TYPEWRITING.**—The very best and most ample opportunities are here given for instruction in the successful operation of the typewriter. The Department possesses twenty-two machines of the most improved pattern, and each worker is assigned a typewriter and becomes responsible for the proper care of the same throughout the year. The touch method of fingering is taught, but is not recommended unless the conditions are favorable and the student has the necessary time to give to the subject. The subject of typewriting embraces all the educational qualifications possible to be acquired, and special attention is given to instruction in this art. All manuscripts are corrected daily, and the student is required to persevere until errors are eliminated.

**EXPENSES.**—Tuition is free. All books and stationery for the two years' course need not cost to exceed \$25. Board and lodging at from \$3 to \$4 per week; club board at reduced rates.

**ADVANTAGES.**—1. Free tuition. 2. Text-books and all stationery sold at cost. 3. A specialist in charge of each class. 4. First-class office equipments for actual business. 5. The large library, museum, College associations and laboratories open to students. 6. Military drill. 7. The students, being under the direct influence of the College, receive culture and obtain privileges that cannot be equalled by business colleges.

**REQUIREMENTS FOR ADMISSION.**—Entrance examinations will be held at the opening of the Fall term. Candidates for admission must be at least fifteen years of age, must show that they have sufficient attainments to enable them to carry on the work, and must pass a satisfactory examination in all branches named in the course for the Sub-Freshman class. Those who are prepared for the work will receive advanced standing.

**DIPLOMA.**—Students who complete the two years' course, sustain the required examinations, and are judged by the Faculty in charge to be prepared for office work will receive a diploma; those who do not meet this requirement will be graduated with a certificate stating amount of work done and grades received.

Students of this Department are subject to the rules and regulations of the College.

## MILITARY DEPARTMENT.

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R. A. MAXFIELD, B.S.

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The importance of military training, both to the individual and the State, is so apparent that comment thereon is here unnecessary, further than to say that the physical training and development alone is sufficient proof of its benefits. The growing demand for military instruction in connection with school work, and the fact that the State Agricultural College is the only State institution where such a department exists, has led the authorities to make the work as thorough as practicable.

For instruction the cadets are formed into companies and the companies form a battalion. Each company has a captain, two lieutenants, five sergeants and five corporals. The officers and non-commissioned officers are selected from those in the higher classes showing the most proficiency in the work.

The work in the Fall term embraces the school of the soldier, company and battalion in close order. Battalion drills are continued at intervals throughout the year. Extended order drill is taken up in the Winter term and continued the Spring term. This includes skirmishes and battle exercises in platoon, company and battalion; advanced guard, rear guard and outpost duties. Inspections, battalion parades, guard mounting and street parades are occasionally given. Inspections are given at such times as to insure the proper care of the equipment. All military exercises are performed in accordance with the United States Drill Regulations.

Practice in Artillery drill is had during the Spring term. This is instruction in the school of the canoneer, unmounted, and is in accordance with United States Artillery Drill Regulations.

The signal corps does practical work in transmitting messages, both by means of signal flags and with heliographs. The systems used are the same as those used in the Government service.

During unfavorable weather theoretical instruction is given, with occasional drills in the manual of arms, which can be executed by the battalion as a whole, within the armory.

The military encampment, held at the close of the school year, affords an excellent opportunity for further instruction in all the duties of the soldier in camp and garrison. To fully carry out this plan in accordance with regulations, the College Battalion has access to the camp and garrison equipage of the State Militia.

The Department is equipped with 250 cadet rifles, belts, cartridge boxes, bayonets and scabbards; two 3-inch rifled field pieces; National and Battalion colors; swords for officers; signal flags and heliographs; drums and trumpets for a field band of fourteen members.

Regular Military encampments are held at least every two years. This is considered a part of the college work and the attendance of the cadets upon these outings is compulsory.

### BATTALION ROSTER.

COMMANDANT—*R. A. Maxfield.*

FIRST LIEUT. AND ADJUTANT—*Antoine Jacob.*

SERGEANT MAJOR—*B. D. G. Bishopp.*

QUARTERMASTER SERGEANT—*Thomas Metcalfe.*

COLOR SERGEANT—*John Wilson.*

DRUM MAJOR—*Arthur G. Newell.*

#### COMPANY A.

CAPTAIN,

H. F. Sturdevant.

1ST LIEUTENANT,

R. W. Tanner.

2ND LIEUTENANT,

J. N. Ostrander.

1ST SERGEANT,

Austin Downey.

SERGEANTS,

Clifford House.

Louis E. Cattell.

Luther D. Cowan.

E. P. Taylor.

CORPORALS,

Chas. Burnhimer.

R. A. Brown.

Harry Jessup.

Oro McDermith.

L. P. Pressler.

#### COMPANY B.

CAPTAIN,

James H. Andrews.

1ST LIEUTENANT,

Leroy A. Baker.

2ND LIEUTENANT,

Ned. V. Tanner.

1ST SERGEANT,

I. W. Veazey.

SERGEANTS,

Oliver Pennock.

Fred. Langridge.

J. N. Clark.

W. B. Smith.

CORPORALS,

Harry True.

Thane Schureman.

Vernard Babbitt.

Leonard Graves.

J. Reed.

#### COMPANY C.

CAPTAIN,

Glynn B. Stannard.

1ST LIEUTENANT,

Ralph Haynes.

2ND LIEUTENANT,

Ross D. Howard.

1ST SERGEANT,

Earnest Graves.

SERGEANTS,

R. R. Parks.

H. J. Faulkner.

E. W. Smith.

F. C. Bishopp.

CORPORALS,

Graham Fuller.

Ray Murphy.

Earl Richardson.

Leslie Chatfield.

W. A. Lamb.

MILITARY BAND—Albert E. Baylis, Chief Musician.

## VETERINARY DEPARTMENT.

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GEORGE H. GLOVER, B.S., D.V.M.

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Livestock is one of the principal industries of the State. The purpose of veterinary science in this institution is to stand for everything that can promote this ever-increasing and important industry in the West, and more especially as affecting the handling and treatment of livestock from a sanitary and pathological standpoint.

Veterinary science appeals to us especially from two standpoints. On the one hand is the loss to the farmer and stockman incident to the common ailments and accidents of livestock, and which in the aggregate is enormous. On the other hand, veterinary science can no longer be confined to such narrow limits, which appeal to us only from a commercial sense in protecting the animal wealth, and to a lesser degree from a humanitarian standpoint; but has now been accepted as a true science, whose importance is far reaching as affecting the health and lives of the people themselves.

There is no subject extant that furnishes greater opportunities for scientific investigation for the immediate and lasting benefit to mankind.

Prophylaxy belongs essentially to comparative medicine, and the two branches, human and veterinary, are inseparable.

Micro-organisms, which are responsible for our many ills, must be studied in the lower animals as well as in man, if at all, and the bond of inseparable usefulness in the protection of the public health has been sealed by the discovery of the antitoxin principles of serum therapy. The immunizing of animals against fatal contagious diseases; the certain detection of latent diseases which can not be known by physical symptoms, and their early isolation, before they have spread their disease germs among their kind, or even to the human family; the cure of some diseases by the administration of repeated doses of attenuated virus, and the prevention of disease by their early administration, are phases of the role of veterinary science and give us a glimpse of its possibilities.



But for tuberculin we never should have even suspected the existence of tubercular consumption in the few Jerseys in the college herd, and the bacilla-laden milk would have continued to be used as human food. This thing is going on to an alarming extent all over the state and the whole country.

The dairies, especially in the suburbs of our large cities, are milking consumptive cows and peddling the milk, and in many cases without restraint, and yet the authorities attach severe penalties to the case of the man who adds a little ditch water to his milk to keep up the supply.

This thing is going on all over the country, notwithstanding the fact that it is now generally agreed by those informed that this is the greatest source of consumption in the human family. Mallein is used successfully in diagnosing glanders in the horse long before any symptoms are manifest; vaccine employed to protect mankind from smallpox; tetanus antitoxin in the treatment of lockjaw; diphtheria antitoxin for diphtheria, as well as antitoxins successfully employed in anthrax, rabies and many other diseases.

The value of animal serums employed for diagnostic, prophylactic and therapeutic purposes, to mankind, can not be estimated.

On the other hand, there is a grievous loss to the farmer and stockman from losses incident to the common ailments and accidents of livestock, and which in the aggregate are enormous. We find the better class of farmers have, through the agencies of the Agricultural College, farmers' institutes, farm journals, etc., become generally possessed of considerable knowledge of the value of foodstuffs and fertilizers, and are studying these things, but are lamentably ignorant on the practical usages of veterinary science.

## ARCHITECTURE.

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It is so clearly under the provision of all the acts, Federal and State, relating to Agricultural and Mechanical Colleges, to provide the youth of the land with such theoretical and technical education as shall make them educated and skilled workmen of high order, that the State Board of Agriculture has decided to introduce the following course in Architecture.

The immediate future of Colorado will lay great demands upon young men skilled in making plans for, and superintending the building of artistic and convenient homes and permanent public and business buildings.

The aim of this course is to secure to its graduates an ample preparation for the demands of the best professional practice. To that end, its course of study combines thorough professional training with the essentials of a liberal education, being so framed that the student may acquire thorough skill in draughtsmanship, combined with a critical taste and creative resource in design and sound judgment in construction.

To accomplish these results, the course is so arranged as to present architecture as an art, which, while inseparable from sound construction and obedience to utility, yet lies above and beyond these attributes in the field of the Fine Arts proper. The most important division of the professional work of the division pertains, therefore, to design; and to this subject, in its various phases, the relatively largest portion of the student's time is devoted throughout the course. Careful attention is given to subjects comprehended under the term "Architectural Engineering," comprising pure and applied science, the nature of materials and the theory and practice of construction and of sanitation. Draughtsmanship receives constant attention throughout the course, not only in drawing incident to the Design Courses, but also in various lines of instruction in pure drawing.

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\* Place to be filled.



The purely professional work of the course thus outlined covers some three-fourths of the time required of the student; the remaining portion being devoted to strictly liberal studies.

The study of Architecture, as here presented, while essential to a proper architectural training, has also strong claims of value as a means of liberal culture, if, together with the purely collegiate branches, consideration be given to that basic element in the professional curriculum which pertains especially to the art of Architecture.

Architectural Engineering, while not a distinct course, is presented in its essential elements.

Drawing in its numerous forms is esteemed as a means of cultivating the perspective faculties, but its great value lies in its peculiar effect in the development of taste, imagination and the faculty of expression, so vital a necessity in creative work.

The work, at the beginning, may be considered as contributing to this end, although its exercises are given a somewhat formal character, but later charcoal drawing from the cast of ornament introduces the work in pure drawing, expanding into "antique" and "life," while much time is given to instruction in water color (in still life, nature and architectural perspective), and pen and ink rendering. Associated with this work and related no less to that in architectural drawing and in pure science, are the courses in Perspective and Shades and Shadows.

Supplemental to this course, a series of lectures will be given before the classes by prominent architects and members of the Colorado Chapter of The American Institute of Architects, upon the various phases of professional work.

## THE AGRICULTURAL EXPERIMENT STATION.

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L. G. CARPENTER, M.S., Director.

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The Agricultural Experiment Station is a department of the College in accordance with the Act of Congress of 1888, commonly known as the Hatch Act. The station is supported by an annual Congressional appropriation of \$15,000. This is available for conducting investigations and experiments, and in disseminating the results of such investigations. It is also aided in various ways by the State Board of Agriculture.

The investigations of the station are made principally at the main station at Fort Collins, where the equipment is located; but in case the necessities of an investigation or the urgent needs of any part of the State are helped by entering on observations elsewhere, this is done so far as the time and means permit. With the large area of Colorado and the diversity of conditions a great variety of questions arises for solution. The necessities of our conditions confine us to the more important, using the results of other stations where applicable to our conditions as far as possible. The situation in our State and the peculiarities of our agriculture indicate that the principal efforts should be along the lines related to irrigated agriculture. The station has for years given attention to the growth of sugar beets in all parts of the State and in conjunction with the Department of Agriculture at Washington has distributed seed and made analyses which have given the knowledge for the establishment of factories; has carried on co-operative experiments, with the aid of many, on irrigation questions, as on the duty of water and the determination of seepage from hundreds of miles of streams and ditches; co-operated in the investigation of fruit pests and plant diseases, etc. The director acts as special agent of the United States Department of Agriculture in the sugar beet and sorghum investigations, and an-

other member of the staff acts as special agent in co-operative grass and forage plant investigations. Under a recent act of Congress all seeds of grass and forage plants are distributed through the Experiment Station instead of through Congressmen or the Department of Agriculture.

There are two sub-stations, one near Rocky Ford and one at Cheyenne Wells on the Great Plains. Each of these is a portion of the main station, with a superintendent in charge, carrying on the investigations outlined or approved by the director and adopted by the State Board of Agriculture.

The publications of the station are sent without charge to those desiring them. They are of four classes:

1. BULLETINS.—Over sixty have been published on various topics of agricultural interest, and these are distributed, so far as the editions permit, to those interested in Colorado agriculture. These comprise bulletins on irrigation matters, alfalfa, sugar beets, barley and other field crops, cattle and sheep feeding, strawberries, small fruits and other garden crops, insects, etc. Lists of those printed can be supplied. The bulletins are sent regularly to those whose names are on the mailing list. Since April, 1900, the following bulletins have been printed:

- No. 53. Strawberries. C. S. Crandall and C. H. Potter.
- No. 54. Apiary Experiments. C. P. Gillette.
- No. 55. Forests and Snow. L. G. Carpenter.
- No. 56. The Birds of Colorado. W. W. Cooke.
- No. 57. Farm Notes. W. W. Cooke.
- No. 58. A Soil Study. Part II. The Crop Grown: Sugar Beets. W. P. Headden.
- No. 59. Field Notes from Trips in Eastern Colorado. J. E. Payne.
- No. 60. Bush Fruits. C. H. Potter.
- No. 61. Bromus Inermis. F. L. Watrous, H. H. Griffin and J. E. Payne.
- No. 62. Cantaloupes. H. H. Griffin.
- No. 63. Sugar Beets. A resumé of the work of the Colorado Experiment Station. W. P. Headden.

2. ANNUAL REPORTS.—These are largely administrative and technical. They are not prepared for general distribution, and hence issued in smaller editions. The Thirteenth Annual Report has been issued as a part of the report of the State Board of Agriculture.

3. **PRESS BULLETINS.**—Shorter statements of experience in various lines or information needing immediate distribution. Sent to papers and to special lists of individuals, according to the subject matter. In this series the following have been issued since April, 1900:

- No. 2. Colorado Sunshine. L. G. Carpenter.
- No. 3. The Beet Army Worm. C. P. Gillette.
- No. 4. The Cantaloupe Blight. H. H. Griffin.
- No. 5. The Russian Thistle as Forage. J. E. Payne.
- No. 6. A So-Called Blight Cure. C. H. Potter.
- No. 7. The Seepage Measurements by the Experiment Station.  
L. G. Carpenter.
- No. 8. Potato Failures. W. Paddock.
- No. 9. Sunshine in 1900. L. G. Carpenter.
- No. 10. Sugar Beets: Cultural Conclusions. W. P. Headden.
- No. 11. How to Fight the Codling Moth. C. P. Gillette.

4. **RIVER PRESS BULLETINS.**—These are weekly reports issued during the irrigation season, rendering information on the current water supply of the Cache a la Poudre river, obtained in pursuance of other investigations, available to the public. Issued in small numbers. Sent to the newspapers of Northern Colorado and to interested individuals. There were twenty-six issued in 1900.

Many bulletins are out of print. Copies are desired to complete sets for libraries. Anyone having copies prior to Number 30 or Numbers 32, 37, 42 and 46, which they can spare, will confer a favor by sending them to the Experiment Station.

For Station publications or general correspondence, address: The Director of the Experiment Station, Fort Collins, Colorado.



## BUILDINGS AND EQUIPMENTS.

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MAIN COLLEGE BUILDING.—College Hall, with its new addition, contains large recitation rooms for the following-named departments: Mathematics; English and Philosophy; History, Literature and German; Latin and Greek; Political Economy and Logic; and Zoology and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoological Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 300 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory 40x72 feet, for drill and gymnastic purposes; the heating plant; office of *The Rocky Mountain Collegian*; special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

THE NEW CHEMICAL LABORATORY.—This building is designed after the French Renaissance style of architecture, with the individual grace and picturesque effect of the old French chateaux. It appears in pleasing contrast with the Romanesque structures in the midst of which it is erected. It is constructed of red sandstone rubbed and smoothed. In the interior arrangement, convenience and facility for carrying on efficient chemical analysis are kept in mind.

To the left of the main loggia, on the first floor, is the professors' suite of rooms, including office, balance room and private laboratory—the latter being provided with hoods and direct communication with a storage room in the basement.

To the right the stairway leads to an entrance to the second floor. Directly in front of the main entrance is the qualitative laboratory, 30x38 feet, supplied with working desks large enough to accommodate thirty-two students. The room is provided with nine hoods, storage room and balance room. This room, being an inside room, is lighted by a large sky-light in the roof—a superior system of lighting when the work to be done is considered.

To the left of this laboratory and behind the professor's rooms is the quantitative laboratory, arranged to accommodate twelve students. It is furnished with six laboratory desks, two hoods and a balance room.

All laboratory desks throughout the building are made of quarter-sawed oak tops and butternut sides, drawers, etc. The sinks are placed at the sides of the laboratories. Each desk is provided with gas and water supplies; also a two-inch waste, flush with the top of the desk; this waste takes the place of sinks in the desk and eliminates much uncleanness usually connected with the work. The hoods are furnished with gas and water supplies; also with strong draft, accelerated by steam coils placed in the large vent stacks.

The second floor of the building is arranged into two lecture rooms, each about 26x46 feet. The chemistry lecture room is connected with the apparatus room by a large hood, provided with slides on both sides, making the transfer of apparatus rapid and convenient. There is connection, also, with the museum and chemical cabinet. The geology lecture room is connected with microscopical room and the museum. The basement is used principally for storage and heating purposes, gas generation, and some analytical work.

The Experiment Station occupies the western section of the first floor. It consists of a room for the assistants, a large work room, store room, balance room and a small room for nitrogen determinations.

**HORTICULTURAL HALL.**—The new Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52x64 feet. It is basement, two stories and attic in height. The basement, which is composed of Pleasant Valley red sandstone, stands high above grade line and gives excellent rooms for grafting, experimental work and the storing of implements. The first story of the building has a ceiling height of fourteen feet and is planned to contain one large lecture room, office, assistant's office, herbarium and other small rooms for experimental work. The second floor is arranged for a large museum, with octagon ceiling; also private laboratories, as well as plant, seed and apparatus rooms. The attic is floored and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick,



trimmed with Pleasant Valley red sandstone rubbed to a smooth finish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this Department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated throughout by the best improved system of hot water. The rooms are thoroughly ventilated by modern means, and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

**GREENHOUSES AND FORCINGHOUSE.**—The new greenhouse recently completed is one wing of a plan which contemplates the addition, at some future time, of a palm-house, and a second wing similar to the one built. Its construction is such that the other parts can be added at any time.

The structure is 25x50 feet and consists of a wrought iron frame securely bolted to cast sills which cap, and are supported by, brick walls rising from a stone foundation. The frame carries the heating pipes and also the shafting from the self-locking ventilating machines. The glazing strips are of clear Gulf cypress, fitted to special castings at either end, and firmly fastened to iron purlins. The house is provided with non-freezing gutters and is glazed with the best greenhouse glass. The benches are of iron, with porous tile bottoms and cypress sides. Two lines of sash at the sides and two at the ridge are connected with geared machines which give perfect control over ventilation.

The frame of the house possesses strength, and at the same time offers little obstruction to light. In plan and details the structure is modern; embracing the best that is known in greenhouse construction. It was purchased of the Lord & Burnham Company, of New York City.

In addition to this greenhouse there has been added a forcing-house, 20x50 feet, made of cypress frame resting upon brick walls,

and a glass connection between the forcing-house and the laboratory, which is 14x14 feet. In this latter house the sides are carried perpendicular to the height of nine feet, affording space for tall plants.

**ORCHARDS AND GROUNDS.**—The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds and cold-frames.

**AGRICULTURAL HALL.**—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for an agricultural museum. The first floor is divided into a hallway and four large, comfortable rooms. Here are found the office of the Professor of Agriculture, churning room, dairy laboratory and seed room. The basement has four apartments, which are used for heating apparatus and storage.

**FARM AND STOCK.**—The farm contains 240 acres, nearly all under cultivation.

The live stock consists of Clydesdale grade draft horses, Short-horn and Jersey cattle, Shropshire sheep and Berkshire hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will permit.

**MECHANICAL ENGINEERING BUILDING.**—This building includes two large main portions, two stories high, and an ell, one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in charge. The tool room is at the middle of the south side of the room; it is supplied with a good assortment of small tools, such as taps, dies, reamers, gages and milling machine cutters. The tools for cutting, threading and fitting iron pipe are also kept in this room. These tools will handle pipe from one-quarter inch up to two inches. Taps are provided for each size of pipe.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, two 17-inch engine lathes, two 14-inch engine lathes, one 13-inch engine lathe, one speed lathe, one 20-inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, a universal

tool and cutter grinder, a twist drill grinding machine, an emery stand, carrying two wheels 16 inches in diameter, a 36-inch grindstone, a 10-inch sensitive drilling machine, and one power metal saw.

An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting.

At the west end of this story is a well-lighted classroom used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the building is devoted to bench and machine work in wood. There are 37 benches, each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, eight wood-turning lathes, a 16-inch patternmaker's lathe with compound rest, a wood trimmer, a 36-inch grindstone and a good supply of clamps.

In the lower story of the east main portion of the building is the engine room, containing the 50-horsepower Corliss engine, which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gage tester affords a means of correcting steam gages.

Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room, which occupies the upper part of this building, has accommodations for fifty students. In the ell portion of the building are found iron store-room, blacksmith shop and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are twenty-five forges, all attached to a system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks and skimmers. Most of the equipment for this room, including the cupola and brass furnace, was made by the students.

**MECHANICAL ENGINEERING LABORATORY.**—The building is situated directly south of the present Mechanical Engineering Building, and is known as the Mechanical Engineering Laboratory. It is 40 feet wide and 60 feet long, and built of pressed brick.

The object of the work of the Laboratory is to give the advanced students an opportunity to make investigations of the physical properties of materials of construction entering into buildings, machinery and other structures; and also to make tests and examinations of different kinds of boilers, engines, motors, pumps and all kinds of mechanical appliances which may be obtained for the use of the department. A number of pieces of apparatus have been given by generous parties for carrying on this work.

As a great deal of the work of investigation is along the line of steam engineering, a new 80-horse power boiler is placed in the Laboratory in order to have the steam needed close at hand. The boiler is so arranged as to allow of its being subjected to regular commercial and scientific tests, and students are instructed how to find the horsepower, how to test for strength, how to test the quality and quantity of the steam furnished by the boiler and to obtain its efficiency.

To test the quality of steam, that is, to find out the amount of moisture in it, there are on hand four different styles of calorimeters, a Carpenter throttling calorimeter, a Carpenter continuous calorimeter and a Barrus calorimeter. There is also a calorimeter devised and made by the students. In connection with these calorimeters there are thirteen thermometers of a high degree of accuracy. These are cylindrical bulb thermometers. There are also several high-grade steam pipe thermometers, thermometers designed to get the temperature of steam flowing through pipes.

A draft gage is also provided for measuring the draft of the smoke stack in connection with the boiler trials. Provision is also made to secure samples of the chimney gases for chemical analysis, in order to assist in ascertaining the thoroughness of combustion of the fuel. The temperature of the gases may also be taken with a suitable instrument which is provided. Several mercurial pressure and vacuum columns are provided. All instruments are carefully calibrated before tests are made with them.

A large water tank and weighing scales are provided, so that the amount of water used and turned into steam may be ascertained while the trial is being made. Three steam engines are in the building.



One is of 12-horse power, made by the Denver Engineering Company; one of 6-horse power, another of 5-horse power; the latter was made by the students. These engines may be run with different loads and at different speeds. Upon these engines brakes are placed, so that a load on the engine may be accurately measured. The students are instructed how to set eccentrics and valves, and how to ascertain the horse power of the engine. For this latter purpose there are on hand two Crosby steam engine indicators, with five springs each, for varying pressures of steam. Brumbo pulleys are ready for use with the indicators and are used to make the stroke of the indicators proportionate to the stroke of the engine. There is also a reductor at hand, for the same purpose, made by Schaeffer & Budenburg, New York.

A United States Observatory barometer, made by Henry J. Green, of Brooklyn, is in the building, to be used in connection with the boiler, engine and pressure tests of various kinds. The airbrake appliance, made by the Westinghouse Airbrake Company, is in this building. It consists of a complete outfit for engine, tender and one car, including all the tanks, valves and engineer's triple valve. Besides using this for the purpose of investigation, the air pump attached is used to furnish air to other kinds of pneumatic machinery. There is also a quick action triple valve, made by the New York Airbrake Company.

There are micrometers and verniers ready for use, which will measure in thousandths of an inch. An ingenious water meter registers the number of gallons of water passing through a pipe in a given time. This is used in connection with the hydraulic work. The planimeter is used for measuring the area of diagrams drawn upon paper, and is used in connection with the figuring out of test diagrams of various kinds. It is of the Amsler design. Revolution counters are used in connection with the engine and motor tests.

There are two steam pumps in this laboratory, one made by George F. Blake, of New York, the other by M. F. Davidson, of Brooklyn, N. Y. The setting of valves and the testing of the efficiency of these pumps are features of the work. Nine steam gages have been presented by different makers, which give a good variety upon which to make investigations. For testing gages, two first-class machines are ready; one for testing pressure gages, the other for testing vacuum gages.



Two sizes of the Hancock inspirator furnish means of studying this highly interesting instrument. Tables are arranged at convenient intervals in the room at which the students are first required to make their theoretical and mathematical calculations, and afterwards compare the practical results of the tests with these calculations. Tabulated results of all tests are made upon blanks of suitable form.

**CIVIL AND IRRIGATION ENGINEERING.**—The building formerly known as the Dormitory has been remodeled and fitted up for the use of the Department of Civil and Irrigation Engineering.

The main classroom is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A room on the second floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On the first floor are the offices, and the room for carrying on the work of the section in the Experiment Station. The office of the Director of the Experiment Station is also in this building. There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor to lessen injurious vibration is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000 pounds, for testing the flow of water through orifices and over weirs. Here also is placed a Pelton water motor and the cement-testing instrument, together with other equipment, pipes, pressure gages, etc., for experimentation. The experiments on measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances; spherometers; gages; gyroscope; air-pump and accessories; thermometers; mirrors and lenses, projecting lantern; electrical ma-

chines; dynamo; batteries; standard B. A. ohm; Queen 100,000 ohm resistance coil; astatic, sine, tangent and d'Arsonval and other galvanometers; Edelmann ohmmeter; quadrant; electrometers; voltmeters; telephones; standard cells; a complete set of standard units; and much minor equipment.

For use in Engineering and Hydraulics it has Colorado, Lallie, Price, Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube; registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gages; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water motor, presented to the Department by the Pelton Water Wheel Co., a water meter presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and several Buff and Berger transits; six levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; integrator; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

DOMESTIC SCIENCE.—The Department of Domestic Science occupies a building which is fitted up for a home. On the lower floor is a large kitchen 25x34 feet in size. It is well lighted and contains furniture and classroom utensils so that a large class can be accommodated. Adjoining this room is a smaller kitchen, which is very convenient for extra work, or for use on occasions of entertaining, since it opens into the dining room. This latter room is used only for the

smaller functions and special demonstrations in table setting, sewing, etc.

At the end of the hall is situated the laundry, which is furnished with porcelain-lined stationary wash-tubs, laundry stove and tank, cupboard, ironing-boards, etc. The other room on this floor is a store-room.

On the second floor, to the right on entering the hall, is a reception room, suitably furnished. Back of this is a bedroom, which is designed to be a model room. Another room opens to the right at the lower end of the hall. This contains two apartments, conveniently equipped with bath-room appliances. These rooms are for the use of such young women in the College as may desire to use them. Situated as they are, immediately over the laundry, there is no difficulty in heating the water.

The classroom, also 25x34 feet, is located on the south side of the building immediately over the kitchen. It is furnished with sewing machines, tables and large cases. The latter are used as receptacles for work and an individual compartment is supplied each student.

This same room serves additional purposes. Sometimes it is a reception-room, at other times a dining-room; as the same tables are used for cutting, sewing and dining. The Chinaware is also kept in this room in nicely arranged closets. From the rear of the classroom one enters the fitting-room, which, in addition to general furniture, contains a large closet where garments in process of making, materials, etc., can be protected.

The accommodations and appliances are ample for classroom and laboratory work in everything connected with household management.

**MILITARY SCIENCE AND TACTICS.**—This Department has two hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice and artillery firing.

**SCIENTIFIC AND TECHNICAL APPARATUS.**—All departments of science have elaborate, modern and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy and entomology is done with the aid of apparatus representing a cost of \$30,000.

The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over \$26,000.

## LIBRARY.

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MARGUERITE E. STRATTON, B.S.

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The College Library was founded in 1878 by donations from members of the Faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax. From this small beginning it has steadily grown in size. It contains at present 11,000 bound volumes, besides many thousand pamphlets.

The Library is supported by appropriations made from the "College" and "Annie Jones" funds. The Faculty Committee on Library is wisely directing the expenditure of this appropriation.

All the books have been selected with great care. The Library contains choice and valuable works on Agriculture, Irrigation, principally by English, French and Italian authors; Mathematics; Physics; Chemistry; Geology; Botany and Horticulture; Physiology; Zoology and Entomology; Mechanics and Engineering; Political Economy; Domestic Science; Science of Education; Military Science; General History; English and American Literature; Music and Art; Translations of the Classics; Biography; Travels; etc.

The Library is well lighted, and, except during the noon hour, the students have the privilege of studying there from 8 a. m. to 5 p. m. on school days, and from 8:30 a. m. to 4 p. m. on Saturdays. The Library is not open on Sundays.

Books may be drawn for a period of two weeks. The Library is catalogued according to the Dewey Decimal System, the author, title and subject cards being arranged on the dictionary plan, in convenient cabinets, to which the students have free access.

The private library of the President has been placed in the Main Building of the College, and is open to the use of advanced students. In modern literature it is probably the strongest private library in the State.

Seventy periodicals, monthly and weekly, are taken by subscription. The publishers of many of the Colorado newspapers have placed



the College Library on their exchange list, and a very large number of agricultural and scientific magazines and journals from all over the world are kindly donated to the Library, thus making it one of the most complete in current literature in the country. Following is the list of periodicals and a large number of the donated magazines and papers:

American Monthly Microscopical Journal.  
 American Gardening.  
 American Journal of Sociology.  
 American Journal of Science.  
 American Machinist.  
 American Kitchen Magazine.  
 American Naturalist.  
 Annals of American Academy of Political and Social Science.  
 Annals of Botany.  
 Anthony's Photographic Bulletin.  
 Art Amateur.  
 Art Interchange.  
 Auk.  
 Bankers' Magazine.  
 Bulletin Torrey Botanical Club.  
 Botanical Gazette.  
 Bookman.  
 Canadian Horticulturist.  
 Cassier's Magazine.  
 Century.  
 Critic.  
 Canadian Entomologist.  
 Contemporary Review.  
 Cosmopolitan.  
 Cumulative Index.  
 Current History.  
 Current Literature.  
 Die Sandweuthschaftelechen Versuchs, Stationer.  
 Educational Review.  
 Electrical World.  
 Engineering (London).  
 Engineering Magazine.  
 Engineering News.



Engineering Record.  
Forum.  
Gardeners' Chronicle.  
Gardening.  
Good Housekeeping.  
Harper's Bazar.  
Harper's Magazine.  
Harper's Weekly.  
Independent.  
International Journal of Ethics.  
Irrigation Age.  
Journal of Morphology.  
Journal of American Chemical Society.  
Journal of Chemical Society (London).  
Journal of Franklin Institute.  
Ladies' Home Journal.  
McClure's Magazine.  
Magazine of American History.  
Munsey.  
National Nurseryman.  
Needlecraft.  
North American Review.  
Outlook.  
Pacific Rural Press.  
Political Science Quarterly.  
Popular Science Monthly.  
Popular Science News.  
Power.  
Psyche.  
Proceedings of Academy of Natural Sciences.  
Public Opinion.  
Review of Reviews.  
Rural New Yorker.  
Scribner's.  
Scientific American and Supplement.  
Werner's Magazine.  
Western Fruit Grower.

EXCHANGES.

ARGENTINE REPUBLIC:

Ministerio de Agricultura: Puerto Deseado.

AUSTRALIA:

Department of Agriculture, Perth.

Department of Agriculture, Victoria.

CANADA:

Department of Agriculture, Ontario.

Department of Agriculture, Ottawa.

COSTA RICA:

Musea Nacional: Ferraz. Informe de 1899-1900.

ENGLAND:

G. C. Bignell: The Ichneumonidae of the South of Devon.

FINLAND:

Acta Societatis pro Fauna et Flora Finnica, XIX.: 1.

FRANCE:

V. Vermorel: Defense des Recoltes par le tir du Canon; Note sur l'Emploi du Sulfure de Carbone.

L. Ravez: les Produits de la Vigne; les Systemes de Taille.

L. Ravez et A. Bonnet; Parasitisme du Phoma reniformis.

GERMANY:

Dr. C. Brick: Botanisches Museum Abtheilung fur Pflanzenschutz zu Hamburg. 2. 1899-1900.

Dr. M. Hollrung: Jahresbericht uber die Neuerungen und Liestungen auf dem Gebiete des Pflanzenschutzes.

HAWAII:

Henry S. Townsend: Report of the Minister of Public Instruction.

Report of the Hawaiian Experiment Station, Honolulu.

Bulletin of Manual Training School, Kamehameha.

INDIA:

Department of Land Records and Agriculture, Madras.

JAMAICA:

Institute of Jamaica, Kingston.

NEW SOUTH WALES:

Department of Agriculture, Sydney.

Botanical Gardens, Sydney.

## PERU:

Ministerio de Fomento: Moreno. Las Irrigaciones de la Costa.

## UNITED STATES:

American Philosophical Society, Philadelphia, Pa.

Academy of Science, Rochester, N. Y.

Bussey Institution, Cambridge, Mass.

Carnegie Library, Pittsburg, Pa.

Department of Agriculture, Harrisburg, Pa.

Elisha Mitchell Scientific Society, Chapel Hill, N. C.

Geological and Natural History Survey of Minnesota.

Iowa Horticultural Society, Des Moines, Iowa.

Indiana Academy of Science, Indianapolis, Indiana.

John Crerar Library, Chicago, Illinois.

Kansas State Horticultural Society, Topeka, Kansas.

Lloyd Library and Museum, Cincinnati, Ohio.

Massachusetts Horticultural Society, Boston, Mass.

Missouri Botanical Gardens, St. Louis, Mo.

New York Botanical Garden, New York, N. Y.

New York State Museum, Albany, N. Y.

Portland Society of Natural History, Portland, Maine.

Public Library, Boston, Massachusetts.

State Board of Agriculture, Topeka, Kansas.

State Board of Agriculture, Boston, Massachusetts.

State Board of Agriculture, Raleigh, North Carolina.

State Board of Agriculture, Providence, Rhode Island.

State Board of Agriculture, Augusta, Maine.

State Board of Health, Augusta, Maine.

State Board of Health, Trenton, N. J.

State Board of Horticulture, Denver, Colorado.

State Board of Horticulture, Butte, Montana.

State Board of Horticulture, Sacramento, California.

Utah State Farmers' Institute, Ogden, Utah.

U. S. Weather Bureau:

Nebraska Section.

Illinois Section.

Colorado Section.

New Mexico Section.

Minnesota Section.

Tennessee Section.

Wyoming Section.

Oregon Section.

Wisconsin Dairyman's Association, Fort Atkinson, Wisconsin.

### SCIENTIFIC PERIODICALS.

Agricultural Journal and Mining Record, Maritzburg, South Africa.

Insect World, Gifu, Japan.

Kongl. Landtbrusk-Akademiens Handlingar och Tidskrift, Stockholm, Sweden.

Le Naturaliste Canadien, Chicoutimi, Quebec, Canada.

Sanitary Inspector, Augusta, Maine.

### AGRICULTURAL JOURNALS.

Acker und Gartenbau-Zietung, Milwaukee, Wis.

American Agriculturist, New York, N. Y.

Agricultural Epitomist, Spencer, Ind.

Agricultural Gazette, Sydney, New South Wales.

Automobile, New York, N. Y.

Beet Sugar Gazette, Chicago, Ill.

Bible Readers' Sunday Magazine.

Boletin de la Comision de Parasitologia Agricola, Mex.

Boletin da Agricultura, Sao Paulo, Brazil.

Co-Operative Farmer and Maritime Dairyman, Sussex, N. B.

Chicago Daily Drovers' Journal, Chicago, Ill.

Dakota Farmer, Aberdeen, S. Dak.

Denver Field and Farm, Denver, Colo.

El Agricultor Mexicano, C. Juarez, Mexico.

Elgin Dairy Report, Elgin, Ill.

Edwards' Fruit Grower and Farmer, Missoula, Montana.

Farmers' Advocate, London, Ontario.

Farmers' Voice, Chicago, Ill.

Farm and Dairy, Sydney, New South Wales.

Farm News, The, Newark, N. J.

Farm and Home, Springfield, Ill.

Farming World, Toronto, Canada.

Farmers' Home, Dayton, Ohio.

Farm Home, Springfield, Mass.

Farmers' Guide, Huntington, Ind.  
Farmers' Tribune, Des Moines, Iowa.  
Golden Egg, St. Louis, Mo.  
Hoard's Dairyman, Fort Atkinson, Wis.  
Home, Field and Forum, Oklahoma City, Okla.  
Homestead, The, Des Moines, Iowa.  
Indiana Farmer, Indianapolis, Ind.  
La Laiterie Belge, Renaix, Belgium.  
Mark Lane Express and Agricultural Journal, London, England.  
Massachusetts Plowman, Boston, Mass.  
Milk News, Chicago, Ill.  
Michigan Sugar Beet, Bay City, Mich.  
Missouri Valley Farmer, Kansas City, Mo.  
Mirror and Farmer, Manchester, N. H.  
National Farmer and Stockgrower, Chicago, Ill.  
National Stockman and Farmer, Pittsburg, Pa.  
Nature, London, England.  
New York Produce Review and American Creamery, New York,  
N. Y.  
Orange Judd Farmer, New York, N. Y.  
Ohio Farmer, Cleveland, Ohio.  
Pacific Coast Fruit World, Los Angeles, California.  
Pacific Rural Press, San Francisco, California.  
Practical Farmer, Philadelphia, Pa.  
Practical Fruitgrower, Springfield, Mo.  
Rural Topics, Morgan City, La.  
Rural World, London, England.  
Ranch and Range, Seattle, Washington.  
Rocky Mountain Farmer and Miner, Denver, Colo.  
Southern Planter, Richmond, Va.  
Sugar Beet, Philadelphia, Pa.  
Up-to-Date Farming and Gardening, Indianapolis, Ind.  
Western Creamery, San Francisco, California.  
Wallace's Farmer and Dairyman, Des Moines, Iowa.  
West Virginia Farm Review, Charleston, W. Va.  
Wool and Cotton Reporter, Boston, Mass.

#### NEWSPAPERS.

Advertiser, Fort Lupton.  
Alliance, Denver.



Bulletin, Berthoud.  
Boulder Herald, Boulder.  
Chicago Record, Chicago, Ill.  
Courier, Fort Collins.  
Courier, Evans.  
Courier, Georgetown.  
Courier, Alamosa.  
Chronicle-News, Trinidad.  
Colorado Springs Gazette, Colorado Springs.  
Citizen, The, Denver.  
Canon City Times, Canon City.  
Chieftain, Holly.  
Denver Daily Stockman, Denver.  
Denver Republican, Denver.  
Enterprise, Rocky Ford.  
Express, Fort Collins.  
Forum, Gillette.  
Greeley Home Journal, Greeley.  
Investor, The, Denver.  
Golden Globe, Golden.  
Grand Valley Sun, Grand Junction.  
Independent, Delta.  
Independent, Littleton.  
Lamar Sparks, Lamar.  
Leader, Windsor.  
Mining Gazette, Idaho Springs.  
Morgan County Herald, Fort Morgan.  
Montrose Press, Montrose.  
News, The, Grand Junction.  
Propaganda, Central City.  
Pueblo Saturday Mail, Pueblo.  
Public Ledger, Philadelphia, Pa.  
Reporter, Loveland.  
Rocky Mountain News, Denver.  
Record-Stockman, Denver.  
Rocky Mountain Farmer and Miner, Denver.  
Rocky Mountain Educator, Denver.  
Salida Mail, Salida.  
Salt Lake Herald, Salt Lake, Utah.

State Herald, Holyoke.  
Silverite Plaindealer, Ouray.  
Sun, The, Greeley.  
Summit County Journal, Breckenridge.  
Success, Manzanola.  
Sun, The, Baltimore, Md.  
Tribune, Greeley.  
Tribune, Boulder.  
Wage Earner, Durango.  
Western Woodman, Denver.  
Wrattler, Wray.

## COLLEGE ORGANIZATIONS.

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### LITERARY SOCIETIES.

There are three Literary Societies connected with the College—the “Philo-Æsthesian,” “Columbian,” and the “Athenæum.” Meetings are held weekly throughout the school year. Students are admitted to these societies by vote of the members. The fees and dues are not burdensome.

“The Philo-Æsthesian Society” meets in the College Chapel. “The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech.”

“The Columbian Literary Society” meets in Horticultural Hall. “This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge.”

“The Athenæum Literary Society” meets in the lecture-room in the Civil Engineering Building. Its purpose is, “to advance the literary culture of its members, give them proficiency in debate, and train them in parliamentary law.”

Nowhere does the Literary Society stand for more than in the Agricultural College. It forms an important part of college life and helps to put into concrete form the investigations of the classroom.

The exercises of the forum and the reading table give the student a wider horizon, a widening consciousness of his own powers, and an ease in both conversation and public address.

The College takes unusual pride in the zest and finely tempered rivalry of these societies, regarding them as important co-workers in the upbuilding of the school.

### ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to encourage the study and practice of oratory in the College. Students regis-

tered in any of the four higher classes may be admitted to membership by vote of the Association.

The Association holds three contests each year; one for the members of the Sophomore and Freshman classes, another for the members of the Senior and Junior classes, and a third for the members of the Senior and Junior classes of the Commercial Department.

Three medals are awarded each year; one of gold to the successful orator in the Senior-Junior contest, and one of silver to the Sophomore-Freshman orator taking first rank, and one of silver taking first rank in the Commercial contest.

The orations are passed upon by two sets of judges; one on thought and composition and the other on delivery.

Next to Commencement week College zeal tides highest at this mid-year contest.

### NATURAL SCIENCE CLUB.

This Club was organized by the members of the Faculty and students of the College in March, 1889. The object of the organization is to keep its members informed upon recent advances in science, and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

### Y. M. AND Y. W. C. A.

This non-sectarian religious movement has had a providential growth in the colleges of the world.

The student mind has long been wearied by the endless discussions of creeds and the effort to dogmatize every being and every principle in the universe. But no mind turns so eagerly to devotion of a rational quality and to a life of humanitarian service, as does the mind of the modern student. Witness the course of college movements for the betterment of society and the intense interest manifested by students in sociological problems.

The student's pulse beats fast beneath any heavenly vision that calls him to a wider knowledge and to a nobler appreciation of human worth. Every phase of modern science and philosophy tends to make him reverent and helpful to his fellows.

These two Christian Associations, one for young men and the other for young women, have come into college life for the two-fold purpose of enriching the faith of the individual student and unifying the student body for clean living, a tolerant bearing toward all conditions of life, and the making of a home feeling in the heart of the young man or young woman away from home the first time.

Special emphasis is laid upon unbiased Bible study in groups or circles.

The College authorities have given these organizations a permanent home in the Main College building. It was furnished by the Young Peoples' Church Societies of Fort Collins.

### SAN JUAN BOARDING CLUB.

A student boarding club was organized a few years ago. Accommodations for about forty students are furnished. The price of board ranges from \$2.00 to \$2.25 per week. The Club is officered by students under the supervision of the Faculty. The amount and quality of food furnished is regulated by the vote of the members of the Club.

### ATHLETIC ASSOCIATION.

The object is to promote the physical well-being of the members and to afford such gymnasium and field practice in athletic games as will enable the chosen representatives to participate with credit in intercollegiate contests.

It is the opinion of the Faculty that whatever excesses there may be in college athletics may best be held in check by sympathetic rather than repressive government.

There are two members of the Faculty on the Board of Directors whose business it is to direct, not to discourage, athletic achievements at home and with other colleges.

The college athlete of to-day is neither a coward nor a dullard; he is both manly and studious.

### COLLEGE PAPER.

In December, 1891, the first number of *The Rocky Mountain Collegian* appeared. Since that date the paper has appeared regularly once a month during the college year. The columns of the *Collegian*



are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official and patron of the College.

### COLLEGE ORCHESTRA AND BAND.

The College is fortunate in having a number of students who have mastered the art of brass, stringed and other instruments. They have not only given zest to College life, but have materially assisted in the entertainments of the year.

The band has been of great service in the military drill.

## GENERAL INFORMATION.

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**ADMISSION.**—Students are admitted to the College according to the following statute: "No student shall be admitted to the institution who is not fifteen years of age and who does not pass a satisfactory examination in arithmetic, geography, grammar, reading, spelling and penmanship."

Therefore, pupils who have completed the eighth grade will be admitted to the Sub-Freshman year upon satisfying the Committee on Examinations, or certified grades, or both.

The requirements for admission to the Sub-Freshman class are those required for entrance to the best high schools.

Candidates for Freshman class standing must show a scholarship fully equivalent to that of one fitted to enter upon the work of the tenth grade of the public schools or the second year grade of the best high schools.

Candidates for advanced classes or work will be admitted by examination, or certified standing from schools having an equivalent grade of work, or both.

Applicants appearing late in the college year will be required to pass, in addition to the entrance examination, a further examination in the work already passed over by the class they desire to enter.

Students of advanced age who desire to enter the Sub-Freshman class but must be conditioned temporarily upon one or two studies, will be taught in these conditioned studies by competent teachers until the condition is passed off.

**REGULAR AND SPECIAL COURSES.**—Unless there are strong and excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or otherwise,

at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular course.

REGISTRATION.—The first two days of the college year are devoted to examination and registration. New students will be met at the trains by Committees of young men and women from the Y. M. and Y. W. C. A., who will take them to the College at once for registration, and will assist them to find good homes and open for them the doors of college life.

GRADES.—In September, 1899, the passing grade was raised from 65 per cent. to 70 per cent. All students who fail to make a standing of 55 per cent. shall be considered "failed," and shall be required to take the subject over again in class. Those making a standing of more than 55 per cent. and less than 70 per cent. shall be considered as "conditioned" and shall be allowed *one special examination* before the subject is again taught by which they may try for a passing grade of 70. In cases of a study extending over two or more terms the student, if he has an average of 55 per cent. may be allowed to continue with his class, but must finally make a grade of 70 per cent. in *one special examination* in each term. If he falls below 55 per cent. in average at the end of a term he will be dropped from the class and be required to take a lower subject.

Students who, by reason of protracted sickness, shall be absent for as much as two-fifths of the term shall be entitled to a special examination on the work done during the time of their absence.

All recitations missed, whether the absence be excused or not, shall be made up at the earliest convenience of the professor in charge. Unexcused absences are met with severe discipline.

Any student who shall have a term standing of 90 per cent. may be exempted from examination and his term standing shall be his term average.

DISCIPLINE.—There are no printed rules. Students are expected to deport themselves as ladies and gentlemen.

While classroom standing is the supreme test of the student's character, the Faculty takes a personal interest in each student, seeking for his highest discipline, physically and morally, as well as mentally.

The moral tone of the College is so high that any one transgressing the commonly accepted laws of good behavior finds himself an outcast among the students unless reformation is prompt and permanent.

**ATHLETICS.**—The Faculty believes in a sympathetic government of athletics. Manly conduct is demanded in sports as well as elsewhere in college life. A certain high grade of proficiency in the classroom is required for recognition in athletics.

**LEAVING COLLEGE.**—Temporary leave of absence from the College must be obtained from the President. Final separation from College must be acted upon by the Faculty.

**LABOR.**—Labor, two hours each school day, is required of all students not excused for physical disability. This labor (see Course of Study) is performed on the farm, or in the garden, in the shops and laboratories, in field work, in irrigation, and in surveying and engineering.

**DEGREES.**—Upon those who complete the work of any of the four courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

Students who complete the Commercial course will receive a diploma or certificate.

On those who already have the degree of Bachelor of Science the degree of Master of Science will be conferred on the completion of a course of study which has been accepted by and been under the direction of the Faculty. The course must extend through at least a year and should include one major and two minor lines of work. The course of work should be accepted as early as October. The subject of the thesis presented should be selected by December, and the thesis itself, which should show power of independent investigation, presented by May 1st, preceding commencement.

The degree of Civil or Mechanical Engineer will be conferred on similar conditions and for a similar amount of technical work, which must also show the possession of experience on the part of the applicant.

**EXPENSES.**—All College fees were abolished in January, 1891. **TUITION IN ALL THE REGULAR AND SPECIAL CLASSES OF THE COLLEGE IS FREE.** There is no charge of any kind for material used in the laboratory work or for books taken from the College Library.



A boarding club, the membership being about forty, has been organized and is managed by the students. The management of this club is so successful and economical, that it suggests the desirability of other organizations of the same character. In this manner board may be obtained at \$2.25 per week. Well furnished rooms, lighted, heated, and cared for, may be had at 75 cents per week.

Students can secure lodging and board in excellent private families at from \$3.25 to \$4.00 per week.

The College authorities are gratified to be able to announce that many of the best homes of Fort Collins are thus opened to students at reasonable rates. No one can estimate the influence of home life thus afforded the young student who is away from home for the first time.

To those who desire to board themselves ample and reasonable opportunities are afforded.

The College is an employer of student labor to a limited extent. In the year just closed our students received \$3,500 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.\*

Fort Collins is a temperance town, absolutely free from the evils that so often beset students with alluring temptations.

Its church privileges are many and of the most refining and helpful quality. While students are not required to report church attendance, they are encouraged to cultivate the religious side of their natures. An afternoon service is held at the College every Sunday.

**DRILL AND PHYSICAL CULTURE.**—All male students are required to procure a uniform immediately after registration; costing about \$14.00, and to drill forty minutes each school day. This, of itself, is a training in physical bearing and a discipline leading to promptness and obedience. The ladies have a daily drill in physical culture. Opportunities are afforded during the year for a public exhibition of physical culture.

The end in view in establishing the Agricultural College was to train the heart, the head and the hand—the trinity of the new education. To make practical men and women for the work world, in field, shop, office and home; to make energetic, patriotic citizens; through its Faculty and students to develop the best resources of this great commonwealth.

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\* The Thirteenth General Assembly has made a special appropriation of \$1,000 per year, for two years, to be expended for student labor upon the College farm.



**Register of Students**  
**AND**  
**Graduates.**



# STUDENTS

1900-1901.\*

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## POSTGRADUATES.

Howard E. Emigh.....Fort Collins, Colorado

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## SENIOR CLASS.

James H. Andrews.....Fort Collins, Colorado  
Rolland N. Bonnett.....Fort Collins, Colorado  
Leroy A. Baker.....Fort Collins, Colorado  
Barton G. D. Bishopp.....Virginia Dale, Colorado  
Luther D. Cowan.....Lasalle, Colorado  
Howard J. Faulkner.....Fort Collins, Colorado  
Ralph W. Haynes.....Fort Lupton, Colorado  
Ross D. Howard.....Fort Collins, Colorado  
Royall S. Howlett.....Trinidad, Colorado  
Antoine Jacob.....Conejos, Colorado  
Cyrus E. McComb.....La Veta, Colorado  
Thomas W. Metcalfe.....Fort Collins, Colorado  
Bertha M. Newlon.....Laporte, Colorado  
Joseph N. Ostrander.....Coulter, Colorado  
Richard R. Parks.....Denver, Colorado  
Frank O. Rasmussen.....Delta, Colorado  
Glynn B. Stannard.....Cheyenne, Wyoming  
Waltgen B. Smith.....Denver, Colorado  
Henry F. Sturdevant.....Steamboat Springs, Colorado  
Ned V. Tanner.....Florence, Colorado

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\* This record is made prior to the close of the spring term. The result of the term's work may change the classification.

|                        |                        |
|------------------------|------------------------|
| Richard W. Tanner..... | Florence, Colorado     |
| Oma M. Veazey.....     | Fort Collins, Colorado |
| John Wilson.....       | Eaton, Colorado        |

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## JUNIOR CLASS.

|                           |                            |
|---------------------------|----------------------------|
| Lorna E. Annis.....       | Fort Collins, Colorado     |
| Delphina I. Betts.....    | Fort Collins, Colorado     |
| Fred C. Bishopp.....      | Virginia Dale, Colorado    |
| Adelaide S. Bristol.....  | Glenwood Springs, Colorado |
| Lewis E. Cattell.....     | Deuel, Colorado            |
| Leslie N. Chatfield.....  | Fort Collins, Colorado     |
| Francis W. Collins.....   | Denver, Colorado           |
| Wilhelmina Douglass.....  | Fort Collins, Colorado     |
| Austin Downey.....        | Fort Collins, Colorado     |
| Tomas S. Funes.....       | Argentine Republic         |
| Hattie F. Gage.....       | Fort Collins, Colorado     |
| Minot J. Giddings.....    | Fort Collins, Colorado     |
| Ernest N. Graves.....     | Broomfield, Colorado       |
| Lenore Gunn.....          | Fort Collins, Colorado     |
| Harry V. Jessup.....      | Fort Collins, Colorado     |
| Nellie M. Killgore.....   | Fort Collins, Colorado     |
| Fred N. Langridge.....    | Boulder, Colorado          |
| Clara L. Love.....        | Fort Collins, Colorado     |
| Oro McDermith.....        | Wolcott, Colorado          |
| Ray Murphy.....           | Glenwood Springs, Colorado |
| James D. Norvell.....     | Fort Collins, Colorado     |
| Oliver P. Pennock.....    | Bellvue, Colorado          |
| Louis P. Pressler.....    | Velardana, Mexico          |
| Robert E. Richardson..... | Fort Collins, Colorado     |
| Marie L. Sharp.....       | Denver, Colorado           |
| Olive L. Sheldon.....     | Fort Collins, Colorado     |
| Ernesto Solá.....         | Argentine Republic         |
| Estes P. Taylor.....      | Fort Collins, Colorado     |
| Eleanor Tomlin.....       | Fort Collins, Colorado     |
| Harry True.....           | Nepesta, Colorado          |
| Irwin W. Veazey.....      | Fort Collins, Colorado     |

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## SOPHOMORE CLASS.

|                           |                          |
|---------------------------|--------------------------|
| Delmar L. Alter.....      | New Windsor, Colorado    |
| Vernard Babbitt.....      | Eaton, Colorado          |
| Helen A. Berry.....       | Stout, Colorado          |
| Wardwell Blydenburgh..... | Rawlins, Wyoming         |
| Clarence G. Brown.....    | Salida, Colorado         |
| Archie Brownell.....      | Greeley, Colorado        |
| Charles W. Burnhimer..... | Breckenridge, Colorado   |
| Jay L. Cain.....          | Fort Collins, Colorado   |
| Donald L. Carver.....     | Dolores, Colorado        |
| James N. Clark.....       | Leadville, Colorado      |
| Albert R. Cliff.....      | Stout, Colorado          |
| Charles E. Davis.....     | Wesley, Colorado         |
| Delpha Dilts.....         | Fort Collins, Colorado   |
| Susan F. Dotson.....      | Ludlow, Colorado         |
| Cale L. Estes.....        | Gunnison, Colorado       |
| Graham Fuller.....        | Fort Collins, Colorado   |
| Marie Gill.....           | Laramie, Wyoming         |
| Leonard C. Graves.....    | Broomfield, Colorado     |
| Dwight D. Gross.....      | Greeley, Colorado        |
| Ansel Harding.....        | Fort Collins, Colorado   |
| Bernard D. Hensel.....    | Grand Junction, Colorado |
| Robert P. Jackson.....    | Denver, Colorado         |
| Charles W. Kelly.....     | Fort Collins, Colorado   |
| William A. Lamb.....      | Hillside, Colorado       |
| John E. Lewis.....        | Timnath, Colorado        |
| Charles R. Marshall.....  | La Junta, Colorado       |
| William J. McAnelly.....  | Fort Collins, Colorado   |
| Ida F. McCain.....        | Fort Collins, Colorado   |
| Charles L. Murray.....    | Fort Collins, Colorado   |
| Fred C. Nichols.....      | Trinidad, Colorado       |
| Albert Norton.....        | La Junta, Colorado       |
| Russell G. Peck.....      | Empire, Colorado         |
| Ernest L. Pell.....       | Boulder, Colorado        |
| John A. Phillips.....     | Elizabeth, Colorado      |
| Jennie A. Phillips.....   | Elizabeth, Colorado      |
| John E. Ramsey.....       | Crook, Colorado          |



|                         |                            |
|-------------------------|----------------------------|
| Joseph F. Reed.....     | Fort Collins, Colorado     |
| Joy Ricketts.....       | Fort Collins, Colorado     |
| Mabel Ricketts.....     | Fort Collins, Colorado     |
| Harry Robertson.....    | Trinidad, Colorado         |
| Thane E. Schureman..... | Fort Collins, Colorado     |
| Howard Sneddon.....     | Salida, Colorado           |
| Oro W. Spensley.....    | Leadville, Colorado        |
| Fred Stearley.....      | Laporte, Colorado          |
| Florence Stuver.....    | Fort Collins, Colorado     |
| Florence A. Tharp.....  | Laporte, Colorado          |
| John O. Thistle.....    | Glenwood Springs, Colorado |
| Claud L. Titus.....     | Fort Collins, Colorado     |
| Louis B. Tuckerman..... | Greeley, Colorado          |

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## FRESHMAN CLASS.

|                           |                          |
|---------------------------|--------------------------|
| Sidney G. Arscott.....    | Fort Collins, Colorado   |
| Matthew Auld.....         | Berthoud, Colorado       |
| William J. Ball.....      | Fort Lupton, Colorado    |
| Lilla M. Barkley.....     | Fort Collins, Colorado   |
| Alice Barry.....          | Fort Collins, Colorado   |
| Nellie Beach.....         | Fort Collins, Colorado   |
| Albert Berry.....         | Leadville, Colorado      |
| Frank N. Bills.....       | Denver, Colorado         |
| Almon N. Blackmer.....    | Fort Collins, Colorado   |
| Alva B. Calvert.....      | Dixon, Wyoming           |
| Eva S. Calvert.....       | Dixon, Wyoming           |
| Ernest C. Calkins.....    | Longmont, Colorado       |
| Leo M. Cherry.....        | Livermore, Colorado      |
| Lawrence J. Cronin.....   | Kokomo, Colorado         |
| Floyd G. Curfman.....     | Denver, Colorado         |
| Caroline A. Devers.....   | Fort Collins, Colorado   |
| Myrtle Dougherty.....     | Fort Collins, Colorado   |
| Edwin A. Drake.....       | Fort Collins, Colorado   |
| Myra Eggleston.....       | Grand Junction, Colorado |
| Wallace L. Eggleston..... | Grand Junction, Colorado |
| Joy Faulkner.....         | Fort Collins, Colorado   |

|                             |                            |
|-----------------------------|----------------------------|
| Claude H. Fryar.....        | Dixon, Wyoming             |
| Roy Hiatt.....              | Canon City, Colorado       |
| Fred W. Hilliard.....       | Fort Collins, Colorado     |
| Christina E. Holmes.....    | Canon City, Colorado       |
| Enos C. Hotchkiss.....      | Hotchkiss, Colorado        |
| Horace V. Hubbell.....      | Berthoud, Colorado         |
| Orin W. Jackson.....        | Cripple Creek, Colorado    |
| Charles R. Jones.....       | Ridgway, Colorado          |
| Rankin D. Jones.....        | Cincinnati, Ohio           |
| William H. Ketner.....      | Golden, Colorado           |
| Thomas F. Key.....          | Canfield, Colorado         |
| Eva A. Kimmons.....         | Walden, Colorado           |
| Jessie L. Kissock.....      | Fort Collins, Colorado     |
| Charles B. Kortz.....       | Big Springs, Nebraska      |
| Morris Leppel, Jr.....      | Leadville, Colorado        |
| Edwin B. Lindstrom.....     | Tie Siding, Wyoming        |
| Lewis E. Martin.....        | Fort Collins, Colorado     |
| Mary A. McCabe.....         | Fort Collins, Colorado     |
| Arthur L. McDowell.....     | Fort Collins, Colorado     |
| Robert B. McLean.....       | Cripple Creek, Colorado    |
| George W. McNeil.....       | Denver, Colorado           |
| Mary E. Metcalfe.....       | Fort Collins, Colorado     |
| Harry H. Miller.....        | Fort Collins, Colorado     |
| Jessie F. Mills.....        | Fort Collins, Colorado     |
| Charles F. Milligan.....    | Vilas, Colorado            |
| Thomas M. Milligan.....     | Vilas, Colorado            |
| Peter J. Mulder.....        | Colorado Springs, Colorado |
| Oscar L. Nelson.....        | Canon City, Colorado       |
| Fred A. Nichols.....        | Meeker, Colorado           |
| Daisy E. Oldfield.....      | Fort Collins, Colorado     |
| Ray Oldfield.....           | Fort Collins, Colorado     |
| Ralph Parshall.....         | Creswell, Colorado         |
| Emanuel P. R. Phillips..... | Grey Rocks, Wyoming        |
| Jessie A. Piatt.....        | Fort Collins, Colorado     |
| Mattie Prendergast.....     | Fort Collins, Colorado     |
| Hubert R. Ricketts.....     | Fort Collins, Colorado     |
| Alfred T. Riley.....        | Meeker, Colorado           |
| Robert Ruple.....           | Alma, Nebraska             |
| Grace E. Sankey.....        | Fort Collins, Colorado     |

|                          |                        |
|--------------------------|------------------------|
| Ethel M. Schureman.....  | Fort Collins, Colorado |
| William F. Seely.....    | Mosea, Colorado        |
| Clarence E. Shaffer..... | Fort Collins, Colorado |
| Frank A. Slayton.....    | Carr, Colorado         |
| John F. Steck.....       | Kersey, Colorado       |
| Emma N. Stuver.....      | Fort Collins, Colorado |
| Laura W. Taylor.....     | Fort Collins, Colorado |
| Madge L. Thompson.....   | Fort Collins, Colorado |
| Harold E. Urquhart.....  | Silt, Colorado         |
| Glenn G. Walter.....     | Fort Collins, Colorado |
| Major C. Weaver.....     | Manzanola, Colorado    |
| Otis Witcher.....        | Cotopaxi, Colorado     |
| Oscar A. Wolff.....      | Silver Cliff, Colorado |
| Nora Zenor.....          | Fort Collins, Colorado |
| Perry Zenor.....         | Fort Collins, Colorado |

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## SUB-FRESHMAN CLASS.

|                           |                         |
|---------------------------|-------------------------|
| Watson B. Ackles.....     | Eldora, Iowa            |
| Philip Amiss.....         | Pruden, Colorado        |
| Merlin H. Aylesworth..... | Fort Collins, Colorado  |
| Lou Bagg.....             | La Junta, Colorado      |
| Harry C. Ballard.....     | Tie Siding, Wyoming     |
| James Barry.....          | Fort Collins, Colorado  |
| Ellen E. Bell.....        | Fort Collins, Colorado  |
| Stella L. Bell.....       | Fort Collins, Colorado  |
| Ralph F. Bristol.....     | Fort Collins, Colorado  |
| Warren J. Bristol.....    | Fort Collins, Colorado  |
| Newton L. Brooks.....     | Winchester, Iowa        |
| Mabel Brooks.....         | Boulder, Colorado       |
| Walter Budington.....     | Highland Lake, Colorado |
| Mabel Bushnell.....       | Fort Collins, Colorado  |
| Charles Carpenter.....    | Hotchkiss, Colorado     |
| Joseph B. Crockett.....   | Jefferson, Colorado     |
| Percy Cuddigan.....       | Ridgway, Colorado       |
| Bertha Covington.....     | Fort Collins, Colorado  |
| Irene C. Davis.....       | Eldora, Colorado        |

|                           |                           |
|---------------------------|---------------------------|
| Andrew T. Dotts.....      | Bethlehem, Iowa           |
| Claude F. Dotts.....      | Bethlehem, Iowa           |
| Harry Drath.....          | Fort Collins, Colorado    |
| Donald E. Farrel.....     | Globeville, Colorado      |
| Thomas F. Fitch.....      | Portland, Oregon          |
| William H. Fowler.....    | Chicago, Illinois         |
| Robert K. Fuller.....     | Fort Collins, Colorado    |
| Ava L. Gant.....          | Fort Collins, Colorado    |
| Edna E. Garbutt.....      | Fort Collins, Colorado    |
| Earl E. Goodwin.....      | Fort Collins, Colorado    |
| Walter R. Gordon.....     | Hanover, Indiana          |
| Carl L. Gross.....        | Denver, Colorado          |
| Jesse H. Havens.....      | Fort Collins, Colorado    |
| Alva A. Hawley.....       | Fort Collins, Colorado    |
| Maxwell Henderson.....    | Denver, Colorado          |
| Ivan Hiatt.....           | Canon City, Colorado      |
| Charles Higdon.....       | Canon City, Colorado      |
| Bessie Hilliard.....      | Fort Collins, Colorado    |
| Earl C. Hodges.....       | Fort Collins, Colorado    |
| Myrtle G. Hoffman.....    | Fort Collins, Colorado    |
| Hervey D. Hubbell.....    | Berthoud, Colorado        |
| Wallace Hylton.....       | Cotopaxi, Colorado        |
| James A. Johnson.....     | Rawlins, Wyoming          |
| Carrie M. Keck.....       | Minturn, Colorado         |
| Clarence Kibler.....      | Fort Collins, Colorado    |
| Emma E. Kissock.....      | Fort Collins, Colorado    |
| Arthur E. Lamb.....       | Fort Collins, Colorado    |
| George J. Lindstrom.....  | Tie Siding, Wyoming       |
| Grace E. Littlefield..... | Fort Collins, Colorado    |
| George Lomas.....         | Guadalupe y Calvo, Mexico |
| Almon Lyons.....          | Fort Collins, Colorado    |
| Vina Mason.....           | Masonville, Colorado      |
| Ralph McCreery.....       | Fort Collins, Colorado    |
| Edith McGowan.....        | Fort Collins, Colorado    |
| Frank McQueary.....       | Sulphur Springs, Colorado |
| Edward C. Mead.....       | Fort Collins, Colorado    |
| Horace W. Milbourne.....  | Paonia, Colorado          |
| Frank C. Miller.....      | Fort Collins, Colorado    |
| Norman J. Miller.....     | Fort Collins, Colorado    |

|                            |                            |
|----------------------------|----------------------------|
| Ray C. Montgomery.....     | Colorado Springs, Colorado |
| Howard H. Montgomery.....  | Colorado Springs, Colorado |
| Attie D. Moore.....        | Fort Collins, Colorado     |
| Edgar Moore.....           | Wolcott, Colorado          |
| Walter N. Moore.....       | Boulder, Colorado          |
| Dick Morgan.....           | Arriola, Colorado          |
| Carl C. Naylor.....        | Loveland, Colorado         |
| Edward C. Neff.....        | Greeley, Colorado          |
| Clarence L. Olson.....     | Cripple Creek, Colorado    |
| William E. O'Laughlin..... | Pruden, Colorado           |
| Boss A. Owen.....          | Bosworth, Colorado         |
| Clarence O. Palmer.....    | Denver, Colorado           |
| Althea Pennoyer.....       | Pinewood, Colorado         |
| John J. Prendergast.....   | Fort Collins, Colorado     |
| Grace W. Richards.....     | Timnath, Colorado          |
| James H. Riddell.....      | Denver, Colorado           |
| William H. Riddell.....    | Denver, Colorado           |
| George F. Robran.....      | Del Norte, Colorado        |
| Roland Seaman.....         | Loveland, Colorado         |
| Edward M. Seely.....       | Mosca, Colorado            |
| Robert D. Sharp.....       | Denver, Colorado           |
| Lewis W. A. Sherbino.....  | Ridgway, Colorado          |
| Rolly Shipley.....         | Fort Collins, Colorado     |
| Frank B. Skinner.....      | Denver, Colorado           |
| Dudley Smith.....          | Fort Collins, Colorado     |
| Myrtle Smoke.....          | Fort Collins, Colorado     |
| Bert A. Snow.....          | Canon City, Colorado       |
| Geof. B. Southcotte.....   | Colorado Springs, Colorado |
| Ray C. Spitzer.....        | Fort Collins, Colorado     |
| Robert C. Swallow.....     | Alcott, Colorado           |
| Fred G. Taylor.....        | Marion, Iowa               |
| James E. Temple.....       | Fort Collins, Colorado     |
| Carlton Tinkham.....       | Loveland, Colorado         |
| Herbert F. Thompson.....   | Fort Collins, Colorado     |
| William H. Trimble.....    | Fort Collins, Colorado     |
| Anna M. Tuttle.....        | Boulder, Colorado          |
| Alexander Van Hamm.....    | Fort Collins, Colorado     |
| Anton Ve Verka.....        | Arnold, Colorado           |
| Royal R. White.....        | Pagosa Springs, Colorado   |



|                        |                         |
|------------------------|-------------------------|
| John Williamson.....   | Kansas City, Missouri   |
| Walter E. Witcher..... | Cripple Creek, Colorado |
| Thomas H. Wold.....    | Fort Collins, Colorado  |
| James A. Woods.....    | Farmington, New Mexico  |

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## COMMERCIAL DEPARTMENT—SENIOR CLASS.

|                          |                         |
|--------------------------|-------------------------|
| Cora M. Anderson.....    | Fort Collins, Colorado  |
| Robert A. Brown.....     | Rico, Colorado          |
| Dudley G. Dwyre.....     | Fort Collins, Colorado  |
| Spencer Farmer.....      | Fort Collins, Colorado  |
| Eda H. McCain.....       | Fort Collins, Colorado  |
| Harry H. Murray.....     | Fort Collins, Colorado  |
| Henry P. Roberts.....    | Idaho Springs, Colorado |
| Edwin W. Smith.....      | Castle Rock, Colorado   |
| Florence M. Stewart..... | Fort Collins, Colorado  |
| Eva Welch.....           | New Windsor, Colorado   |
| Jennie M. Welch.....     | New Windsor, Colorado   |
| Bernice E. Youngson..... | Aspen, Colorado         |

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## COMMERCIAL DEPARTMENT—JUNIOR CLASS.

|                        |                          |
|------------------------|--------------------------|
| Ezra Baer.....         | Meeker, Colorado         |
| John Bald.....         | Coal Creek, Colorado     |
| Clara Barry.....       | Fort Collins, Colorado   |
| Ray Baxter.....        | Fort Collins, Colorado   |
| Albert E. Baylis.....  | Grand Junction, Colorado |
| Maggie Beach.....      | Fort Collins, Colorado   |
| Minnie E. Beach.....   | Fort Collins, Colorado   |
| Edith M. Benson.....   | Fort Collins, Colorado   |
| Clara C. Brockett..... | Runnels, Iowa            |
| Luella Case.....       | Fort Collins, Colorado   |
| Anna L. Cash.....      | Fort Collins, Colorado   |

|                          |                        |
|--------------------------|------------------------|
| Horace M. Cattell.....   | Deuel, Colorado        |
| Earl L. Chamberlain..... | Sheridan, Indiana      |
| Jennie Clark.....        | Monte Vista, Colorado  |
| Simon L. Cort.....       | Elizabeth, Colorado    |
| Barclay S. Edwards.....  | Timnath, Colorado      |
| William J. Edwards.....  | Ridgway, Colorado      |
| Howard H. Endner.....    | Gunnison, Colorado     |
| Archie F. Finley.....    | New Windsor, Colorado  |
| Morris E. Flineau.....   | Fort Collins, Colorado |
| Alice G. Gant.....       | Fort Collins, Colorado |
| Lena M. Gilkison.....    | Laporte, Colorado      |
| Aurela Gooldy.....       | Dixon, Wyoming         |
| Paul H. Graham.....      | Maxson, Kansas         |
| Mabelle E. Harris.....   | Fort Collins, Colorado |
| Mortimer Hawley.....     | Fort Collins, Colorado |
| James W. Hawthorne.....  | Salida, Colorado       |
| Winfield E. Holmes.....  | Fort Collins, Colorado |
| Bartholomew Holt.....    | Boulder, Colorado      |
| Clifford House.....      | Cheyenne, Wyoming      |
| Fred K. Huffman.....     | Fort Collins, Colorado |
| Hugh R. Keck.....        | Minturn, Colorado      |
| Charles A. Kutcher.....  | Sheridan, Wyoming      |
| Alice F. Leonard.....    | Fort Collins, Colorado |
| Manuel Martinez.....     | San Luis, Colorado     |
| Alexander McNeil.....    | Denver, Colorado       |
| Ida M. McNeal.....       | Fort Collins, Colorado |
| Arthur D. Milligan.....  | Lawrence, Kansas       |
| George R. Milligan.....  | Denver, Colorado       |
| Virginia L. Moore.....   | Boulder, Colorado      |
| Arthur R. Moser.....     | Denver, Colorado       |
| John P. Nash.....        | Georgetown, Colorado   |
| Cecil R. Newman.....     | Cheyenne, Wyoming      |
| Arthur G. Newell.....    | Wray, Colorado         |
| Emma B. Nicholson.....   | Boulder, Colorado      |
| Margaret Norvell.....    | Fort Collins, Colorado |
| Eva Peterson.....        | Laramie, Wyoming       |
| Ansel R. Pierce.....     | Fort Collins, Colorado |
| Louis D. Quick.....      | Fort Collins, Colorado |
| Harry J. Rees.....       | Cheyenne, Wyoming      |

|                            |                        |
|----------------------------|------------------------|
| Fern A. Reeves.....        | Fort Collins, Colorado |
| George Richardson.....     | Fort Collins, Colorado |
| Florence M. Roller.....    | Fort Collins, Colorado |
| Edward E. Rouleau.....     | Canon City, Colorado   |
| George F. Schattinger..... | Jefferson, Colorado    |
| Harry K. Schnitger.....    | Cheyenne, Wyoming      |
| Delano F. Scott.....       | Fort Collins, Colorado |
| Hildagaurd Sholine.....    | Rawlins, Wyoming       |
| Charles A. Sisson.....     | Wray, Colorado         |
| Irwin Sisson.....          | Wray, Colorado         |
| Percy C. Stanley.....      | Sebring, Ohio          |
| Edith L. Stauffacher.....  | Catherin, Colorado     |
| Guy Tefft.....             | Ophir, Colorado        |
| Ella M. Vandewark.....     | Fort Collins, Colorado |
| William B. Ward.....       | Georgetown, Colorado   |
| Paul B. Walker.....        | Carthage, Illinois     |
| Stephen H. Whitney.....    | Uva, Wyoming           |
| Claude J. Wilson.....      | Meeker, Colorado       |
| Anna M. Wood.....          | Fort Collins, Colorado |
| Hubert R. Woods.....       | St. Cloud, Colorado    |
| William C. Woods.....      | Farmington, New Mexico |

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## SPECIAL STUDENTS.

|                          |                        |
|--------------------------|------------------------|
| Claude H. Annis.....     | Fort Collins, Colorado |
| Elsa A. Bristol.....     | Fort Collins, Colorado |
| Elsie W. Button.....     | Fort Collins, Colorado |
| Eunice L. Chatfield..... | Fort Collins, Colorado |
| Lineta L. Crandall.....  | Fort Collins, Colorado |
| Laura Dealy.....         | Fort Collins, Colorado |
| Addie Evans.....         | Belding, Michigan      |
| Stuart B. Garbutt.....   | Fort Collins, Colorado |
| Stella Griffin.....      | Fort Collins, Colorado |
| Delphine A. Harris.....  | Fort Collins, Colorado |
| Helen P. Headden.....    | Fort Collins, Colorado |
| Jennie M. Holmes.....    | Fort Collins, Colorado |
| Myrtle E. Huston.....    | Emporia, Kansas        |

|                             |                         |
|-----------------------------|-------------------------|
| John R. Littlefield.....    | Fort Collins, Colorado  |
| Enoch J. Mills.....         | Linton, Kansas          |
| Edith Moore.....            | Fort Collins, Colorado  |
| Katie R. Oliver.....        | Fort Collins, Colorado  |
| Jerome G. Sherick.....      | New York, New York      |
| Ettie Shires.....           | Boulder, Colorado       |
| Sydney C. Smith.....        | Fort Lupton, Colorado   |
| Grace N. Smith.....         | Chicago, Illinois       |
| Cornelia L. Somerville..... | Mitchells, Pennsylvania |
| Parke E. Taylor.....        | Fort Collins, Colorado  |
| Laura A. Titus.....         | Fort Collins, Colorado  |

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## SUMMARY.

|                                | Male. | Female. | Total. |
|--------------------------------|-------|---------|--------|
| Postgraduate .....             | 1     | 0       | 1      |
| Seniors .....                  | 21    | 2       | 23     |
| Juniors .....                  | 20    | 11      | 31     |
| Sophomores .....               | 39    | 10      | 49     |
| Freshman .....                 | 51    | 24      | 75     |
| Sub-Freshman .....             | 81    | 20      | 101    |
| Commercial Course—Seniors..... | 6     | 6       | 12     |
| Commercial Course—Juniors..... | 49    | 24      | 71     |
| Special Students.....          | 7     | 17      | 24     |
| <hr/>                          |       |         |        |
| Total.....                     | 273   | 114     | 387    |

## GRADUATES.

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- Albert M. Ten Eyck, M.S., 1897 (B.Agr. University of Wisconsin, 1893) Assistant Agriculturist, State Agricultural College, ..... Fargo, North Dakota
- Carl H. Potter, M.S., 1899 (B.S. University of Wisconsin, 1892), Assistant in Horticulture and Botany, Agricultural College of Colorado, 1899-1901, Horticulturist..... Palisades, Colorado

—2

### 1884.

- George H. Glover, B.S. (D.V.M., Iowa Agricultural College), Professor of Veterinary Science, Agricultural College of Colorado..... Fort Collins, Colorado
- Elizabeth Coy, B.S. (Mrs. James W. Lawrence). Fort Collins, Colorado
- Leonidas Loomis, B.S., Stockman..... Fort Collins, Colorado

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### 1885.

- Cora Bell Blinn, B.S..... Rocky Ford, Colorado
- Edna L. Hice, B.S., Teacher Loveland Public Schools..... Fort Collins, Colorado
- Lelia L. Loomis, B.S. (Mrs. T. H. Robertson) .. Fort Collins, Colorado
- Grace Espy Patton, B.S. (M.S., 1897) (Mrs. W. H. Cowles), Professor of English and Philosophy, Agricultural College of Colorado, 1885-1897; State Superintendent of Public Instruction of Colorado, 1897-1899; Journalist..... Manila, Philippine Islands
- Robert E. Trimble, B.S., Assistant Meteorologist and Irrigation Engineer, Experiment Station, Agricultural College of Colorado..... Fort Collins, Colorado
- Helen White, B.S. (Mrs. John Rigden)..... Timnath, Colorado

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## 1886.

Wilbert J. Sickman, B.S., Clerk of the District Court of Larimer County, Colorado, until 1896; deceased.

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## 1887.

Eleanor F. Gill, B.S. (Mrs. William Frazer) . . . . . Bisbee, Arizona  
Marguerite E. Stratton, B.S., Librarian Agricultural College of Colorado, 1895-1901; deceased.

Lerah G. Stratton, B.S. (Mrs. P. J. McHugh), Librarian Agricultural College of Colorado, 1887-1891 . . . Fort Collins, Colorado  
Edwin G. Nettleton, B.S., Assistant Engineer, Bear River Canal, Utah, 1891-1892; Assistant Engineer Sonora and Sinaloa Canal, Mexico, 1893; deceased.

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## 1888.

Lewis A. Coffin, B.S., Assistant Chemist, Agricultural College of Colorado, 1888-1889; Farmer . . . . . Longmont, Colorado  
Harvey H. Griffin, B.S., Superintendent New Mexico Experiment Station, Aztec, 1892-1897; Superintendent Arkansas Valley Sub-Station . . . . . Rocky Ford, Colorado  
Josephine Lee, B.S., Teacher, City Schools . . . . . Boulder, Colorado  
Jennie E. McLain, B.S. (Mrs. H. R. Corbett), Professor of History and Geography, State Normal School, Peru, Nebraska, 1891-1897; Professor of History and Literature, Agricultural College of Colorado, 1897-1900 . . . . . Chicago, Illinois

—4

## 1889.

Lucy Bell, B.S. (Mrs. C. V. Benson) . . . . . Loveland, Colorado  
Arthur L. Davis, B.S. (M.D., 1895, Gross Medical College, Denver), Graduate Eye, Ear, Nose and Throat Medical College of Chicago, 1900; Physician . . . . . Durango, Colorado

—2

## 1890.

Clarence V. Benson, B.S. (LL.B., University of Michigan, 1892; M. S., Agricultural College of Colorado, 1896); Secretary Board of Education of Loveland since 1897; City Attorney of Loveland, 1893-1895; Cashier Bank of Loveland . . . . .  
 . . . . . Loveland, Colorado

- Velma V. Benson, B.S. (Mrs. A. Beebe) . . . . . Loveland, Colorado  
 Burt C. Buffum, B.S. (M.S., 1893), Professor of Agriculture and  
 Horticulture, University of Wyoming, 1891-1900; Professor  
 of Agriculture, Agricultural College of Colorado . . . . .  
 . . . . . Fort Collins, Colorado  
 Charles A. Duncan, B.S., Irrigation Assistant, Agricultural Col-  
 lege of South Dakota, 1891; Superintendent San Luis Valley  
 Experiment Station, 1893-1896; Farmer . . . . . Timnath, Colorado  
 Newton C. Garbutt, B.S., Attorney-at-Law . . . . . Fort Collins, Colorado  
 Helen E. Lunn, B.S. (Mrs. T. J. Montgomery) . . . . . Fort Collins, Colorado  
 Harry R. Temple, B.S., Engineer, Boulder Flour Mill and Ele-  
 vator Company . . . . . Boulder, Colorado  
 Cora B. Thoman, B.S. (Mrs. Clarence Jarbeau), Principal Pre-  
 paratory Department, Agricultural College of Colorado,  
 1897-1898 . . . . . Georgetown, Colorado  
 Mary L. Weaver, B.S. (Ph.B., Ohio State University) . . . . .  
 . . . . . 231 Church street, Urbana, Ohio  
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1891.

- John S. Calkins, B.S., Farmer and Stockman . . . . . Harris, Colorado  
 Charles R. Evans, B.S., Stockman and Fruit Grower . . . . .  
 . . . . . Fort Collins, Colorado  
 Minnie E. McLain, B.S. . . . . Fort Collins, Colorado  
 —3

1892.

- Charles W. Beach, B.S. (B.S., University of Illinois, 1894), As-  
 sistant Engineer, Great Plains Storage and Irrigation Com-  
 pany . . . . . Las Animas, Colorado  
 Frank Beach, B.S. (M.S., 1896), Superintendent San Luis Valley  
 Experiment Station, 1893-1895; Superintendent New Mexico  
 Experiment Station, Las Vegas, 1895-1896; Professor of Ag-  
 riculture and Irrigation Engineering, Montana State Agri-  
 cultural College, 1896-1898; Farmer and Stockman . . . . .  
 . . . . . Las Animas, Colorado  
 Alice Bell, B.S. (Mrs. S. L. Boothroyd) . . . . . Bellvue, Nebraska  
 Samuel Bell, B.S. (M.D., University of Denver, 1896), Resident  
 Physician St. Luke's Hospital, 1897; Physician. Meeker, Colorado

- Don A. Carpenter, B.S., Manager, Mining Department of the New York Office of Edw. P. Allen & Company.....95 Liberty street, New York
- Porter J. Preston, B.S., Assistant State Engineer of Colorado, 1893-1896; Assistant Engineer Great Plains Storage and Irrigation Company; Superintendent Fort Lyons Canal.....Las Animas, Colorado
- Albert J. Sedgwick, B.S.....South Bend, Indiana
- Lewis L. Stimson, B.S., County Surveyor of Weld County, 1895-1897; City Engineer of Greeley, 1897-1899; Civil and Irrigation Engineer.....Greeley, Colorado
- Frank H. Thompson, B.S., Stenographer President's Office, and Manager Text-Book Department Agricultural College of Colorado.....Fort Collins, Colorado

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## 1893.

- John D. Bloomfield, B.S., Superintendent and Manager Phillis Canal .....Nampa, Idaho
- Samuel L. Boothroyd, B.S., Professor of Astronomy and Mathematics, Mount Morris College, Illinois, 1893-1897; Assistant Astronomer, Lowell Observatory, Flagstaff, Arizona, 1897-1899; Professor of Mathematics Bellvue College.....Bellvue, Nebraska
- Ida M. Lewis, B.S. (Mrs. J. T. Douglass); deceased.
- Charles J. Gilkison, B.S., Principal Commercial Department Agricultural College of Colorado.....Fort Collins, Colorado
- William J. Ralph, B.S., Deputy Postmaster...Fort Collins, Colorado
- Raymond F. Walter, B.S., County Surveyor of Weld County; City Engineer of Greeley; Deputy State Engineer...Greeley, Colorado
- William W. Willard, B.S., Merchant.....Twin Lakes, Colorado

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## 1894.

- Philo K. Blinn, B.S., Superintendent Arkansas Valley Sub-Station, 1895-1897; Secretary Otero County Horticultural Society; Farmer and Horticulturist.....Rocky Ford, Colorado
- Jacob H. Cowen, B.S. (B.Agr. Cornell University, 1899); Assistant Botanist and Horticulturist, Agricultural College of Colorado, 1895-1898; Professor of Botany and Horticulture, Agricultural College of Colorado, 1900; deceased.

Will H. Fairfield, B.S. (M.S., 1898), Farm Superintendent, University of Wyoming.....Laramie, Wyoming  
 Minnie F. Harrington, B.S. (Mrs. W. F. Gilkison).Laramie, Wyoming  
 Herbert S. Kendall, B.S., Superintendent of Experiment Station, Lander, Wyoming, 1894-1896.....Denver, Colorado  
 Celia May Southworth, B.S. (Mrs. Frank Beach), Librarian Agricultural College of Colorado, 1891-1895..Las Animas, Colorado  
 Harlan Thomas, B.S., Member State Board of Agriculture of Colorado, 1899; Member Board of Education and Mayor of Montclair; Architect....511 McPhee Building, Denver, Colorado

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1895.

Jean B. Balcomb, B.S., United States Deputy Mineral Surveyor; Engineer and Assayer, Silver Ledge Mine, Silverton; Constructing Engineer, North Star Gold Mining Company; Engineer, Crystal Mining and Milling Company.....Woodland Park, Colorado  
 Herbert A. Black, B.S., Shipping Clerk for McPhee & McGinnity Lumber Company of Denver.....Catskill, New Mexico  
 Edith G. Boothroyd, B.S., Teacher.....Arkins, Colorado  
 Henry A. Calkins, B.S. (M.D., Denver College of Medicine, 1901), Physician .....Denver, Colorado  
 Edward P. Cooke, B.S., Money Clerk, United States and Pacific Express Companies.....Des Moines, Iowa  
 Loren B. Curtis, B.S., Assistant Constructing Engineer for Denver Tramway Company.....Denver, Colorado  
 William F. Gilkison, B.S. (M.E., 1898), Professor of Mechanical Engineering, University of Wyoming.....Laramie, Wyoming  
 Ella G. Goldsborough, B.S. (Mrs. E. C. Reed) ..Fort Collins, Colorado  
 Seth C. Lewis, B.S., Farmer.....Timnath, Colorado  
 Edgar A. Mead, B.S., Farmer.....Greeley, Colorado  
 George W. Nelson, B.S., Assistant Superintendent, Olive Mining Company.....Grand Forks, British Columbia  
 Frances C. Schelt, B.S., Teacher.....Fort Collins, Colorado  
 Walter K. Starbird, B.S., Stockman.....Denver, Colorado

—13



## 1896.

- Fred Alford, B.S., Assistant Chemist, Agricultural College of Colorado.....Fort Collins, Colorado
- Henry F. Alps, B.S., Observer United States Weather Bureau..  
.....Nashville, Tennessee
- William E. Becker, B.S., Letter Carrier.....Dowagiac, Michigan
- Florence J. Boothroyd, B.S., Nurse.....Arkins, Colorado
- Alfred H. Bungardt, B.S. (M.D., 1900, University Medical College, Kansas City), Chief of Staff of University Medical College.....205 Hall Building, Kansas City, Missouri
- Allen P. Greenacre, B.S., Instructor, Department of Mechanical Engineering, Agricultural College of Colorado.....  
.....Fort Collins, Colorado
- Robinson W. Hawley, B.S., Irrigation Engineer in Colorado and New Mexico; Assistant in State Engineer's Office.....  
.....Denver, Colorado
- John E. Kiteley, B.S., Assistant Chemist, Agricultural College of Colorado, 1896-1898; Farmer.....Longmont, Colorado
- Richard A. Maxfield, B.S., Sergeant United States Volunteer Engineer Corps, Spanish-American War, 1898-1899; Professor of Military Science and Tactics, Agricultural College of Colorado.....Fort Collins, Colorado
- Abner S. McKee, B.S., Assayer. 1727 Champa street, Denver, Colorado
- Grafton S. Norman, B.S., Second Lieutenant United States Volunteer Infantry, 1898-1899; Instructor in Mathematics and Natural Sciences, Blue Grass Normal and Industrial Institute .....Keene, Kentucky
- Robert W. Sears, B.S., Stockman.....Fowler, Colorado

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## 1897.

- May A. Dievendorf, B.S. (Mrs. Frank Miller)..Fort Collins, Colorado
- Bertram A. Gage, B.S., Assistant Cashier, Fort Collins National Bank.....Fort Collins, Colorado
- Martha R. Gilkison, B.S. (Mrs. Frank Woods).Fort Collins, Colorado
- Robert S. Gray, B.S., Surveyor.....Wheatland, Wyoming
- Archie J. Harris, B.S., First Lieutenant Second United States Infantry.....Santa Cruz, Isle Marinduque, Philippine Islands



Ralph H. Hess, B.S., Instructor, Department of Mathematics,  
 Agricultural College of Colorado.....Fort Collins, Colorado  
 Alta E. Lewis, B.S., Teacher.....Timnath, Colorado  
 Smith D. Philip, B.S., Lumber Merchant.....Fort Lupton, Colorado  
 Anna L. Picken, B.S. (Mrs. N. C. Warren); deceased.  
 Mary E. Prendergast, B.S., Clerk.....Fort Collins, Colorado  
 David J. Richards, B.S., United States Army.....  
 .....Manila, Philippine Islands  
 —11

1898.

Emil Affolter, B.S., Farmer.....Longmont, Colorado  
 Herman O. Brown, B.S., Merchant.....Salida, Colorado  
 Raymond C. Calloway, B.S., Farm Foreman, Agricultural Col-  
 lege of Colorado.....Fort Collins, Colorado  
 William A. Dickens, B.S., Farmer.....Longmont, Colorado  
 Jesse W. Goodwin, B.S., Electrical Engineer and Machinist.....  
 .....Loveland, Colorado  
 Fred S. Hotchkiss, B.S., Farmer and Engineer...Hotchkiss, Colorado  
 Amos Jones, B.S., Engineer Crystal River Railroad, 1898-1899;  
 Assistant Department of Engineering, Agricultural College  
 of Colorado.....Fort Collins, Colorado  
 Herbert C. Matthews, B.S., Machinist.....Cheyenne, Wyoming  
 Bernard J. Prendergast, B.S., Teacher.....Fort Collins, Colorado  
 Linnie M. Rutledge, B.S.; deceased.  
 Charles E. Swann, B.S., Assistant Engineer Union Pacific Coal  
 Company.....Rock Springs, Wyoming  
 Melvin D. Williams, B.S., Engineer, West Gallatin Irrigation  
 Company, 1898; Assistant Engineer, Pike's Peak Power  
 Company, 1899-1900; Draughtsman, Experiment Station,  
 Agricultural College of Colorado.....Fort Collins, Colorado  
 Thomas J. Warren, B.S., Draughtsman, Mine & Smelter Supply  
 Company .....Denver, Colorado  
 —13

1899.

Lee R. Cooke, B.S., Machinist, Oxnard Beet Sugar Factory....  
 .....Sugar City, Colorado  
 Frank Corbin, B.S., Lumber Dealer.....Fort Collins, Colorado

- Howard E. Emigh, B.S. (M.S., 1900), Employe Oregon Short  
Line Railroad and Pacific Express Company.....Juab, Utah
- Raymond R. Fisk, B.S., Musical Director and Clerk, State In-  
dustrial School.....Golden, Colorado
- Newton M. Fitch, B.S.; address unknown.
- Lewis C. Hall, B.S., Engineer and Surveyor....Canon City, Colorado
- William R. Headden, B.S., Stenographer, Director's Office, Agri-  
cultural Experiment Station of Colorado..Fort Collins, Colorado
- Herman Howard, B.S., Machinist, Union Iron Works.....  
.....San Francisco, California
- Addison L. Kellogg, B.S., Engineer, Colorado Springs and Canon  
City Railroad.....Victor, Colorado
- William J. Littleton, B.S.....Trinidad, Colorado
- Charles W. Mayers, B.S.....Littleton, Colorado
- Harry C. Miller, B.S., Pharmacist, Palace Drug Company, Den-  
ver .....Hotchkiss, Colorado
- Jacob C. Mulder, B.S.....Colorado Springs, Colorado
- Charles S. Newell, B.S., Electrician, Colorado Telephone Com-  
pany.....202 E. Golden avenue, Cripple Creek, Colorado
- Marguerite Prendergast, B.S., Student.....Fort Collins, Colorado
- George A. Smith, B.S., Teacher.....Snyder, Colorado
- James A. Stump, B.S., Instructor, Department of Physics and  
Engineering, Agricultural College of Colorado.....  
.....Fort Collins, Colorado
- Edward S. G. Titus, B.S., Assistant Entomologist, Agricultural  
College of Colorado.....Fort Collins, Colorado

—18

## 1900.

- Abbie C. Alford, B.S.....Fort Collins, Colorado
- Laura Armstrong, B.S., Student.....Fort Collins, Colorado
- Clifford S. Atherly, B.S., Letter Carrier.....Fort Collins, Colorado
- Clara M. Cunningham, B.S., Student of Music, Denver.....  
.....Fort Collins, Colorado
- Thomas M. Donelson, B.S.....Union Stock Yards, Denver, Colorado
- Earl Douglass, B.S., Assistant Chemist, Agricultural Experi-  
ment Station of Colorado.....Fort Collins, Colorado
- Nellie M. Drake, B.S., Student, Armour Institute, Chicago.....  
.....Fort Collins, Colorado

|                                                       |                                          |
|-------------------------------------------------------|------------------------------------------|
| Stuart B. Garbutt, B.S., Student.....                 | Fort Collins, Colorado                   |
| Walter P. Hurley, B.S.....                            | Denver, Colorado                         |
| Adolph F. Lindon, B.S., Dairy and Stock Farmer...     | Haxtum, Colorado                         |
| Otto W. Lunnon, B.S., Electrical Contractor.....      |                                          |
| .....                                                 | .0710 Monroe street, Spokane, Washington |
| Roy S. Lumry, B.S., Stockman.....                     | Fort Collins, Colorado                   |
| William F. Marshall, B.S.....                         | Fort Collins, Colorado                   |
| Ray E. McClave, B.S., Farmer and Stockman....         | Platteville, Colorado                    |
| Emmet C. McAnelly, B.S., Surveyor Larimer County..... |                                          |
| .....                                                 | Fort Collins, Colorado                   |
| Dana Q. McComb, B.S.....                              | Fort Collins, Colorado                   |
| Harry H. Murray, B.S.; deceased.                      |                                          |
| Elizabeth A. Nugent, B.S., Teacher.....               | Laporte, Colorado                        |
| Robert A. Pierce, B.S., Student.....                  | Fort Collins, Colorado                   |
| Etta E. Richardson, B.S.....                          | Fort Collins, Colorado                   |
| Ethel M. Smith, B.S.....                              | Fort Collins, Colorado                   |
| Edwin A. Sutton, B.S., Millwright.....                | Goldfield, Colorado                      |
| Pauline W. Taft, B.S.....                             | Laporte, Colorado                        |
| Oliver B. Tomlin, B.S., Letter Carrier.....           | Fort Collins, Colorado                   |
| Frances M. Warren, B.S. (Mrs. C. J. Gilkison).        | Fort Collins, Colorado                   |
| Anna M. Wood, B.S., Student.....                      | Fort Collins, Colorado                   |

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## COMMERCIAL COURSE.

1898.

|                                                             |                                 |
|-------------------------------------------------------------|---------------------------------|
| Charles L. Arnell, Bookkeeper and Clerk.....                | Alamosa, Colorado               |
| Ray J. Baker, Stenographer.....                             | Fort Collins, Colorado          |
| William A. Doty, Bookkeeper and Stenographer,               | Denver City                     |
| Tramway Company.....                                        | Mendota Block, Denver, Colorado |
| Frank L. Garnick, Mechanic.....                             | Fort Collins, Colorado          |
| Richard E. Hammond, Stenographer.....                       | Denver, Colorado                |
| Agnes L. Hawley, Stenographer.....                          | Rocky Ford, Colorado            |
| Pearl Hays, Instructor in Stenography and Typewriting, Ken- |                                 |
| tucky Female Orphan School.....                             | Midway, Kentucky                |
| Julius P. Olson, Bookkeeper and Clerk.....                  | Eagle, Colorado                 |

Inez Smith, Stenographer and Bookkeeper, Overland Cotton Mills,  
 .....71 W. Bayaud street, Denver, Colorado  
 Bessie C. Wood, Stenographer, J. C. Millen Mfg. Company.....  
 .....Denver, Colorado  
 —10

## 1899.

Byron K. Baird, United States Revenue Service...Honolulu, Hawaii  
 Charles J. Gilkison, B.S., Principal Commercial Department, Ag-  
 ricultural College of Colorado.....Fort Collins, Colorado  
 William R. Headden, B.S., Stenographer for Director Agricul-  
 tural Experiment Station of Colorado....Fort Collins, Colorado  
 George F. Kern, Stenographer and Bookkeeper.....  
 .....New Windsor, Colorado  
 Lizzie M. Nicholson (Mrs. Hersley).....Denver, Colorado  
 Cecil G. Philip, Stockman.....Fort Lupton, Colorado  
 —6

## 1900.

Eunice Chatfield.....Fort Collins, Colorado  
 Mary A. Dickerson, Stenographer and Bookkeeper..Denver, Colorado  
 James Elliott, Farmer.....Timnath, Colorado  
 L. Cale Estes, Student.....Fort Collins, Colorado  
 Mary E. Quick.....Fort Collins, Colorado  
 Edith Schang, Stenographer.....Fort Collins, Colorado  
 Emmet O. Smith, Stenographer.....Sterling, Colorado  
 Pearl Smith (Mrs. Brooks).....Fort Collins, Colorado  
 Marion E. Warren, Instructor in Bookkeeping and Stenography,  
 University of Wyoming, 1900-1901; deceased.  
 —9

## OFFICERS OF THE ALUMNI ASSOCIATION.

---

|                |                     |
|----------------|---------------------|
| President..... | Mrs. May A. Miller  |
| Secretary..... | Charles J. Gilkison |
| Treasurer..... | Ralph H. Hess       |



# CALENDAR OF EXERCISES.

---

1901-1902.

|                                                   |                                         |
|---------------------------------------------------|-----------------------------------------|
| Entrance Examinations.....                        | Monday, September 2, 1901               |
| Registration of Students....                      | Monday and Tuesday, Sept. 2 and 3, 1901 |
| Fall Term Begins.....                             | Wednesday, September 4, 1901            |
| Fall Term Closes.....                             | Friday, November 29, 1901               |
| Winter Term Begins.....                           | Monday, December 2, 1901                |
| Holiday Recess Begins.....                        | Friday, December 20, 1901               |
| Holiday Recess Closes.....                        | Monday, January 6, 1902                 |
| Winter Term Closes.....                           | Friday, March 7, 1902                   |
| Spring Term Begins.....                           | Monday, March 10, 1902                  |
| Sermon before Christian Associations....          | 3 p. m. Sunday, June 1, 1902            |
| Baccalaureate Sermon.....                         | 8 p. m. Sunday, June 1, 1902            |
| Commencement Exercises of Literary Societies..... |                                         |
| .....                                             | 8 p. m. Monday, June 2, 1902            |
| Junior Class Day Exercises.....                   | 8 p. m. Tuesday, June 3, 1902           |
| State Board of Agriculture Meets.....             | Wednesday, June 4, 1902                 |
| Senior Class Exercises.....                       | 10:30 a. m. Wednesday, June 4, 1902     |
| Alumni Debate.....                                | 8 p. m. Wednesday, June 4, 1902         |
| Commencement Exercises.....                       | Thursday, June 5, 1902                  |
| Reunion of Alumni.....                            | 8 p. m. Thursday, June 5, 1902          |

| 1901 |      |      |       |      |       |      | CALENDAR |      |      |      |       |      |       | 1901 |      |       |      |      |       |      |       |      |      |
|------|------|------|-------|------|-------|------|----------|------|------|------|-------|------|-------|------|------|-------|------|------|-------|------|-------|------|------|
|      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat.     |      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |       | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |
| Jan. | --   | --   | 1     | 2    | 3     | 4    | 5        | May  | --   | --   | --    | 1    | 2     | 3    | 4    | Sept. | 1    | 2    | 3     | 4    | 5     | 6    | 7    |
|      | 6    | 7    | 8     | 9    | 10    | 11   | 12       |      | 5    | 6    | 7     | 8    | 9     | 10   | 11   |       | 8    | 9    | 10    | 11   | 12    | 13   | 14   |
|      | 13   | 14   | 15    | 16   | 17    | 18   | 19       |      | 12   | 13   | 14    | 15   | 16    | 17   | 18   |       | 15   | 16   | 17    | 18   | 19    | 20   | 21   |
|      | 20   | 21   | 22    | 23   | 24    | 25   | 26       |      | 19   | 20   | 21    | 22   | 23    | 24   | 25   |       | 22   | 23   | 24    | 25   | 26    | 27   | 28   |
|      | 27   | 28   | 29    | 30   | 31    | --   | --       |      | 26   | 27   | 28    | 29   | 30    | 31   | --   |       | 29   | 30   | --    | --   | --    | --   | --   |
| Feb. | --   | --   | --    | --   | --    | 1    | 2        | June | --   | --   | --    | --   | --    | --   | 1    | Oct.  | --   | --   | 1     | 2    | 3     | 4    | 5    |
|      | 3    | 4    | 5     | 6    | 7     | 8    | 9        |      | 2    | 3    | 4     | 5    | 6     | 7    | 8    |       | 6    | 7    | 8     | 9    | 10    | 11   | 12   |
|      | 10   | 11   | 12    | 13   | 14    | 15   | 16       |      | 9    | 10   | 11    | 12   | 13    | 14   | 15   |       | 13   | 14   | 15    | 16   | 17    | 18   | 19   |
|      | 17   | 18   | 19    | 20   | 21    | 22   | 23       |      | 16   | 17   | 18    | 19   | 20    | 21   | 22   |       | 20   | 21   | 22    | 23   | 24    | 25   | 26   |
|      | 24   | 25   | 26    | 27   | 28    | --   | --       |      | 23   | 24   | 25    | 26   | 27    | 28   | 29   |       | 27   | 28   | 29    | 30   | 31    | --   | --   |
|      | --   | --   | --    | --   | --    | --   | --       |      | 30   | --   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   | --   |
| Mar. | --   | --   | --    | --   | --    | 1    | 2        | July | --   | 1    | 2     | 3    | 4     | 5    | 6    | Nov.  | --   | --   | --    | --   | --    | 1    | 2    |
|      | 3    | 4    | 5     | 6    | 7     | 8    | 9        |      | 7    | 8    | 9     | 10   | 11    | 12   | 13   |       | 3    | 4    | 5     | 6    | 7     | 8    | 9    |
|      | 10   | 11   | 12    | 13   | 14    | 15   | 16       |      | 14   | 15   | 16    | 17   | 18    | 19   | 20   |       | 10   | 11   | 12    | 13   | 14    | 15   | 16   |
|      | 17   | 18   | 19    | 20   | 21    | 22   | 23       |      | 21   | 22   | 23    | 24   | 25    | 26   | 27   |       | 17   | 18   | 19    | 20   | 21    | 22   | 23   |
|      | 24   | 25   | 26    | 27   | 28    | 29   | 30       |      | 28   | 29   | 30    | 31   | --    | --   | --   |       | 24   | 25   | 26    | 27   | 28    | 29   | 30   |
|      | 31   | --   | --    | --   | --    | --   | --       |      | --   | --   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   | --   |
| Apr. | --   | 1    | 2     | 3    | 4     | 5    | 6        | Aug. | --   | --   | --    | --   | 1     | 2    | 3    | Dec.  | 1    | 2    | 3     | 4    | 5     | 6    | 7    |
|      | 7    | 8    | 9     | 10   | 11    | 12   | 13       |      | 4    | 5    | 6     | 7    | 8     | 9    | 10   |       | 8    | 9    | 10    | 11   | 12    | 13   | 14   |
|      | 14   | 15   | 16    | 17   | 18    | 19   | 20       |      | 11   | 12   | 13    | 14   | 15    | 16   | 17   |       | 15   | 16   | 17    | 18   | 19    | 20   | 21   |
|      | 21   | 22   | 23    | 24   | 25    | 26   | 27       |      | 18   | 19   | 20    | 21   | 22    | 23   | 24   |       | 22   | 23   | 24    | 25   | 26    | 27   | 28   |
|      | 28   | 29   | 30    | --   | --    | --   | --       |      | 25   | 26   | 27    | 28   | 29    | 30   | 31   |       | 29   | 30   | 31    | --   | --    | --   | --   |
|      | --   | --   | --    | --   | --    | --   | --       |      | --   | --   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   | --   |

| 1902 |      |      |       |      |       |      | CALENDAR |      |      |      |       |      |       | 1902 |      |       |      |      |       |      |       |      |      |    |
|------|------|------|-------|------|-------|------|----------|------|------|------|-------|------|-------|------|------|-------|------|------|-------|------|-------|------|------|----|
|      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat.     |      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |       | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |    |
| Jan. | --   | --   | --    | 1    | 2     | 3    | 4        | May  | --   | --   | --    | --   | 1     | 2    | 3    | Sept. | --   | 1    | 2     | 3    | 4     | 5    | 6    |    |
|      | 5    | 6    | 7     | 8    | 9     | 10   | 11       |      | 12   | 13   | 14    | 15   | 16    | 17   | 18   |       | 19   | 20   | 21    | 22   | 23    | 24   | 25   | 26 |
|      | 12   | 13   | 14    | 15   | 16    | 17   | 18       |      | 19   | 20   | 21    | 22   | 23    | 24   | 25   |       | 26   | 27   | 28    | 29   | 30    | 31   | --   | -- |
|      | 19   | 20   | 21    | 22   | 23    | 24   | 25       |      | 26   | 27   | 28    | 29   | 30    | 31   | --   |       | --   | --   | --    | --   | --    | --   | --   | -- |
|      | 26   | 27   | 28    | 29   | 30    | 31   | --       |      | 25   | 26   | 27    | 28   | 29    | 30   | 31   |       | --   | --   | --    | --   | --    | --   | --   | -- |
| Feb. | --   | --   | --    | --   | --    | --   | 1        | June | --   | 1    | 2     | 3    | 4     | 5    | 6    | Oct.  | --   | --   | --    | 1    | 2     | 3    | 4    |    |
|      | 2    | 3    | 4     | 5    | 6     | 7    | 8        |      | 9    | 10   | 11    | 12   | 13    | 14   | 15   |       | 16   | 17   | 18    | 19   | 20    | 21   | 22   |    |
|      | 9    | 10   | 11    | 12   | 13    | 14   | 15       |      | 16   | 17   | 18    | 19   | 20    | 21   | 22   |       | 23   | 24   | 25    | 26   | 27    | 28   | 29   |    |
|      | 16   | 17   | 18    | 19   | 20    | 21   | 22       |      | 23   | 24   | 25    | 26   | 27    | 28   | --   |       | --   | --   | --    | --   | --    | --   | --   |    |
|      | 23   | 24   | 25    | 26   | 27    | 28   | --       |      | 29   | 30   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   | --   |    |
| Mar. | --   | --   | --    | --   | --    | --   | 1        | July | --   | --   | --    | 1    | 2     | 3    | 4    | Nov.  | --   | --   | --    | --   | --    | --   | 1    |    |
|      | 2    | 3    | 4     | 5    | 6     | 7    | 8        |      | 9    | 10   | 11    | 12   | 13    | 14   | 15   |       | 16   | 17   | 18    | 19   | 20    | 21   | 22   |    |
|      | 9    | 10   | 11    | 12   | 13    | 14   | 15       |      | 16   | 17   | 18    | 19   | 20    | 21   | 22   |       | 23   | 24   | 25    | 26   | 27    | 28   | 29   |    |
|      | 16   | 17   | 18    | 19   | 20    | 21   | 22       |      | 23   | 24   | 25    | 26   | 27    | 28   | 29   |       | 30   | 31   | --    | --   | --    | --   | --   |    |
|      | 23   | 24   | 25    | 26   | 27    | 28   | 29       |      | 30   | 31   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   | --   |    |
| Apr. | --   | --   | 1     | 2    | 3     | 4    | 5        | Aug. | --   | --   | --    | --   | --    | 1    | 2    | Dec.  | --   | 1    | 2     | 3    | 4     | 5    | 6    |    |
|      | 6    | 7    | 8     | 9    | 10    | 11   | 12       |      | 3    | 4    | 5     | 6    | 7     | 8    | 9    |       | 10   | 11   | 12    | 13   | 14    | 15   | 16   |    |
|      | 13   | 14   | 15    | 16   | 17    | 18   | 19       |      | 10   | 11   | 12    | 13   | 14    | 15   | 16   |       | 17   | 18   | 19    | 20   | 21    | 22   | 23   |    |
|      | 20   | 21   | 22    | 23   | 24    | 25   | 26       |      | 17   | 18   | 19    | 20   | 21    | 22   | 23   |       | 24   | 25   | 26    | 27   | 28    | 29   | 30   |    |
|      | 27   | 28   | 29    | 30   | --    | --   | --       |      | 24   | 25   | 26    | 27   | 28    | 29   | 30   |       | --   | --   | --    | --   | --    | --   | --   |    |
|      | --   | --   | --    | --   | --    | --   | --       | 31   | --   | --   | --    | --   | --    | --   | --   | --    | --   | --   | --    | --   | --    | --   |      |    |

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**Twenty-Third Annual**

**Register of the Officers and Students**

... of ...

# **The State Agricultural College**

**Fort Collins, Colorado.**



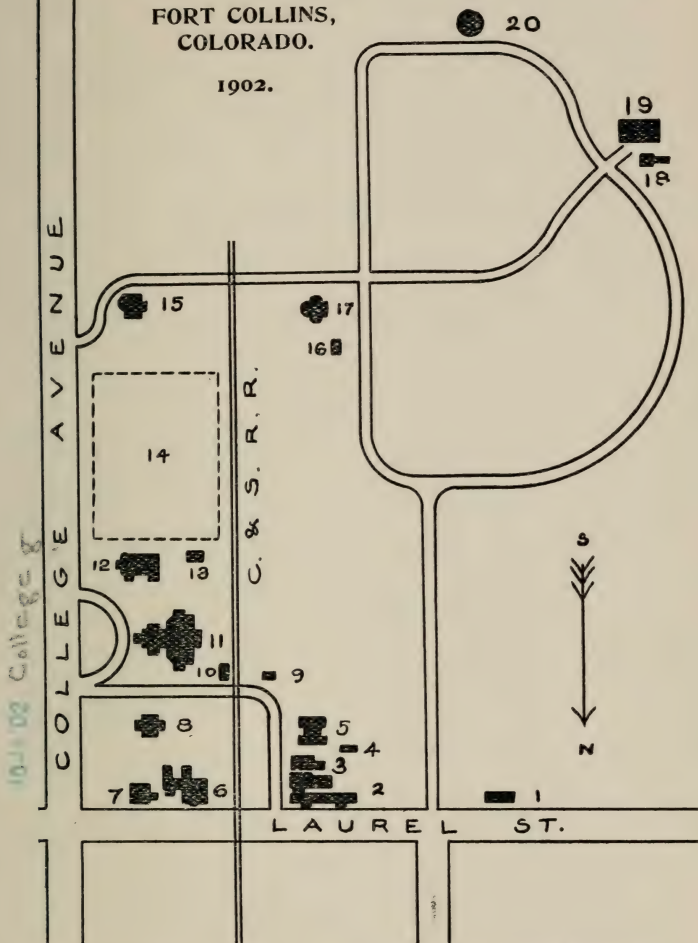
**1901=1902.**



# MAP OF THE CAMPUS OF The State Agricultural College,

FORT COLLINS,  
COLORADO.

1902.



- |                                       |                                           |
|---------------------------------------|-------------------------------------------|
| 1 Horticultural Barns.                | 11 Main College Building.                 |
| 2 Mechanic Arts Hall.                 | 12 Chemical Laboratory.                   |
| 3 Mechanical Experimental Laboratory. | 13 Apiary.                                |
| 4 Hose House.                         | 14 Athletic and Parade Grounds.           |
| 5 Commercial College.                 | 15 Agricultural Hall.                     |
| 6 Horticultural Hall.                 | 16 Barn for Farm Residence.               |
| 7 Domestic Science Hall.              | 17 Residence of Professor of Agriculture. |
| 8 Civil Engineering Building.         | 18 Office and Tool House.                 |
| 9 Meteorological Station.             | 19 College Barns.                         |
| 10 College Station.                   | 20 Sheep Paddocks.                        |





# THE STATE BOARD OF AGRICULTURE.

|                                 | <i>Post Office.</i>  | <i>Term Expires.</i> |
|---------------------------------|----------------------|----------------------|
| HON. B. F. ROCKAFELLOW.....     | Canon City.....      | 1903                 |
| MRS. ELIZA F. ROUNT.....        | Denver .....         | 1903                 |
| HON. JESSE HARRIS.....          | Fort Collins.....    | 1905                 |
| HON. P. F. SHARP.....           | Denver .....         | 1905                 |
| HON. HARLAN THOMAS.....         | Denver .....         | 1907                 |
| HON. W. R. THOMAS.....          | Denver .....         | 1907                 |
| HON. JAMES L. CHATFIELD.....    | Gypsum .....         | 1909                 |
| HON. B. U. DYE.....             | Rocky Ford.....      | 1909                 |
| GOVERNOR J. B. ORMAN.....       | } <i>Ex-Officio.</i> |                      |
| PRESIDENT B. O. AYLESWORTH..... |                      |                      |

## OFFICERS.

|                                  |                 |
|----------------------------------|-----------------|
| P. F. SHARP.....                 | President       |
| A. M. HAWLEY.....                | Secretary       |
| J. C. CHIPLEY.....               | Treasurer       |
| (State Treasurer, Denver, Colo.) |                 |
| CHAS. H. SHELDON.....            | Local Treasurer |

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## FINANCE.

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JESSE HARRIS,                      B. U. DYE,                      J. L. CHATFIELD.

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## BOTANY, HORTICULTURE AND ENTOMOLOGY.

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## COLLEGE BUILDINGS AND PERMANENT IMPROVEMENTS.

B. U. DYE,                      HARLAN THOMAS,                      JESSE HARRIS.

## DOMESTIC SCIENCE AND LIBRARY.

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## COMMERCIAL DEPARTMENT, HISTORY AND LITERATURE, ENGLISH AND RHETORIC.

W. R. THOMAS,                      J. L. CHATFIELD,                      ELIZA F. ROUTT,

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LOUIS G. CARPENTER, M.S.,  
Professor of Civil and Irrigation Engineering.

CLARENCE P. GILLETTE, M.S.,  
Professor of Zoology and Entomology. U

WILLIAM P. HEADDEN, A.M., PH.D.,  
Professor of Chemistry and Geology.

THEODOSIA G. AMMONS,  
Professor of Domestic Science.

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Professor of Veterinary Science.

FRANK H. ORMSBY,  
Director of Music.

# INSTRUCTORS AND ASSISTANTS.

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Physics and Civil Engineering.

AMOS JONES, B.S.,  
Field Work in Engineering.

L. D. CRAIN, B.M.E.,  
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ALLEN P. GREENACRE, B.S.,  
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FRANK O. RASMUSSEN,  
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EDWARD P. BOYD, B.S.,  
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WILLIAM F. GARBE,  
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Mathematics.

SARAH T. SUTHERLAND,  
Domestic Science.



†.....  
German, French and Spanish.

ELMER D. BALL, M.S.,  
Entomology.

FRED M. ROLFS, B.S.,  
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HENRY H. ORTH,  
Floriculture and Landscape Gardening.

\*RAY C. CALLOWAY, B.S.,  
Superintendent College Farm.

WILLIAM O'BRIEN,  
Superintendent College Farm.

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ANDREW H. DANIELSON, B.S.,  
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GEORGE E. TOOMEY, B.A.,  
Oratory.

JOSEPH F. DANIELS,  
Librarian.

FRANK H. THOMPSON, B.S.,  
Stenographer, President's Office.

ARTHUR D. MILLIGAN,  
Stenographer, Director's Office.

MARGARET MURRAY,  
Stenographer.

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\*Resigned January 1, 1902.

†Place to be filled.

# AGRICULTURAL EXPERIMENT STATION.

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## STATION STAFF.

|                                |                                             |
|--------------------------------|---------------------------------------------|
| L. G. CARPENTER, M.S.....      | Director and Irrigation Engineer            |
| C. P. GILLETTE, M.S.....       | Entomologist                                |
| W. P. HEADDEN, A.M., PH.D..... | Chemist                                     |
| B. C. BUFFUM, M.S.....         | Agriculturist                               |
| WENDELL PADDOCK, M.S.....      | Horticulturist and Botanist                 |
| G. H. GLOVER, D.V.M.....       | Veterinarian                                |
| R. E. TRIMBLE, B.S.....        | Asst. Meteorologist and Irrigation Engineer |
| F. C. ALFORD, B.S.....         | Assistant Chemist                           |
| EARL DOUGLASS, B.S.....        | Assistant Chemist                           |
| E. D. BALL, M.S.....           | Assistant Entomologist                      |
| F. M. ROLFS, B.S.....          | Assistant Horticulturist                    |
| A. H. DANIELSON, B.S.....      | Agronomist                                  |
| H. H. GRIFFIN, B.S.....        | Field Agent, Rocky Ford, Colo.              |
| J. E. PAYNE, M.S.....          | Field Agent, Cheyenne Wells, Colo.          |

## OFFICERS.

|                                   |               |
|-----------------------------------|---------------|
| B. O. AYLESWORTH, A.M., LL.D..... | President     |
| L. G. CARPENTER, M.S.....         | Director      |
| A. M. HAWLEY.....                 | Secretary     |
| A. D. MILLIGAN.....               | Stenographer. |

## LOCATION AND HISTORY.

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LOCATION.—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer County, which is one of the most prosperous agricultural counties in the State. The town contains 4,000 inhabitants, and is beautifully situated about five miles from the foothills, and in full view of Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light, and its sidewalks are exclusively made of flag-stone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Colorado and Southern Railway are its buildings and the farm. Visitors are always welcome. They find the town accessible by four trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

HISTORY.—The origin of The State Agricultural College of Colorado, like that of its sister institutions in other states, dates back to an act of Congress, passed July 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, *"a college where the leading object shall be, without excluding other scientific and classical studies, and including Military Tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."*

This act gave the College an endowment of 90,000 acres of land.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State *two hundred and forty acres of land* whereon to erect the necessary buildings. In 1877, the Legislature

provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The corner-stone of the Main College Building was laid July 29, 1878. This building was completed and ready for occupancy early in the following year.

The initial term of the College opened September 1, 1879. The record shows the enrollment of twenty different students at the close of this term. There was but one course of study. The college year began with the spring term and closed with the autumn term, the vacation season occurring in midwinter. The calendar for 1881-1882 shows the abandonment of this arrangement and the adoption of the present plan of three consecutive terms of thirteen weeks each, with a short vacation at Christmas season and a long vacation extending from "Commencement Day," early in June, to the first Monday in September.

Elective studies are first noted in the catalogue for 1886-'87. The next year brings the announcement for the differentiation of the work at the close of the Sophomore year. Two courses, the Agricultural and the Mechanical, are outlined. The Irrigation Engineering Course and the Ladies' Course were first scheduled in the catalogue for 1889-'90. The Commercial Course, to be completed in two years, was introduced in 1896.

The enrollment of students and the number of graduates for the last four years is as follows:

| Years.    | Males. | Females. | Total. | Graduates. |
|-----------|--------|----------|--------|------------|
| 1899..... | 251    | 94       | 345    | 18         |
| 1900..... | 245    | 119      | 364    | 26         |
| 1901..... | 273    | 114      | 387    | 23         |
| 1902..... | 317    | 132      | 449    | 26         |

The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoology and Entomology, Mechanical Engineering, Civil and Irrigation Engineering, Mathematics, Logic and Political Economy, History and Literature, Rhetoric and Philosophy, Architecture, Domestic Science, Veterinary Science, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, German, French, Spanish, Oratory and Physical Culture.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

"The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, *and shall be a high seminary of learning*, in which the graduates of the common schools, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those Sciences and Arts which bear directly upon *agriculture and kindred industrial pursuits.*"



## THE AGRICULTURAL EXPERIMENT STATION.

The Agricultural Experiment Station is a department of the College in accordance with the Act of Congress of 1888, commonly known as the Hatch Act. The station is supported by an annual Congressional appropriation of \$15,000. This is available for conducting investigations and experiments, and in disseminating the results of such investigations. It is also aided in various ways by the State Board of Agriculture.

The investigations of the station are made principally at the main station at Fort Collins, where the equipment is located; but in case the necessities of an investigation or the urgent needs of any part of the State are helped by entering on observations elsewhere, this is done so far as the time and means permit. With the large area of Colorado and the diversity of conditions a great variety of questions arise for solution. The necessities of our conditions confine us to the more important, using the results of other stations where applicable to our conditions. The situation in our State and the peculiarities of our agriculture indicate that the principal efforts should be along the lines related to irrigated agriculture. The station has for years given attention to the growth of sugar beets in all parts of the State and in conjunction with the Department of Agriculture at Washington has distributed seed and made analyses which have given the knowledge for the establishment of factories; has carried on co-operative experiments, with the aid of many, on irrigation questions, as on the duty of water and the determination of seepage from hundreds of miles of streams and ditches; co-operated in the investigation of fruit pests and plant diseases, etc. The director acts as special agent of the United States Department of Agriculture in the sugar beet and sorghum investigations, and another member of the staff acts as special agent in co-operative grass and sugar beet seed investigations. Under a recent act of Congress all seeds of grass and forage plants are distributed through the Experiment Station instead of through Congressmen or the Department of Agriculture.

There are two field stations, one near Rocky Ford and one at Cheyenne Wells on the Great Plains. Each of these is a portion of the main station, with a superintendent in charge, carrying on the investigations outlined or approved by the director and adopted by the State Board of Agriculture.

The publications of the station are sent without charge to those desiring them. They are of four classes:

1. BULLETINS.—Over seventy have been published on various topics of agricultural interest. These are distributed, so far as the editions permit, to those interested in Colorado agriculture. There are bulletins on irrigation matters, alfalfa, sugar beets, barley and other field crops, cattle and sheep feeding, strawberries, small fruits and other garden crops, insects, etc. Lists of those printed can be supplied. The bulletins are sent regularly to those whose names are on the mailing list. Since January, 1901, the following bulletins have been printed:

2. ANNUAL REPORTS.—These are largely administrative and technical. They are not prepared for general distribution, and hence issued in smaller editions. The last is the Fourteenth Annual Report.

3. PRESS BULLETINS.—Shorter statements of experience in various lines, or information needing immediate distribution. Sent to papers and to individuals, according to subject matter. Issued as the need arises.

4. RIVER PRESS BULLETINS.—These are weekly reports issued during the irrigation season, rendering information on the current water supply of the Cache a la Poudre River, obtained in pursuance of other investigations, available to the public. Issued in small numbers. Sent to the newspapers of Northern Colorado and to interested individuals. There were twenty-one issued in 1901.

Many bulletins are out of print. Copies are desired to complete sets for libraries.

For Station publications or general correspondence, address: The Director of the Experiment Station, Fort Collins, Colorado.

No. 62. Cantaloupes. H. H. Griffin.

No. 63. Sugar Beets. A resumé of the work of the Colorado Experimental Station. W. P. Headden.

No. 64. Press Bulletins.

No. 65. A Soil Study. Part III. The Soil, W. P. Headden.

No. 66. Relation of the Bovine to Human Tuberculosis. G. H. Glover. Tuberculine Tests of the College Herd. B. C. Buffum.

No. 67. The Distribution of Water. Powers and Duties of Irrigation Officials in Colorado. H. N. Haynes.

No. 68. Pasture Grasses; Leguminous Crops; Cantaloupe Blight. H. H. Griffin.

No. 69. Plant Diseases. W. Paddock.

No. 70. Potato Failures. F. M. Rolfs.

No. 71. Insects and Insecticides. C. P. Gillette.

## BUILDINGS AND EQUIPMENTS.

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MAIN COLLEGE BUILDING.—College Hall, with its new addition, contains large recitation rooms for the following-named departments: Mathematics; English and Philosophy; History, Literature and German; Latin and French; Political Economy and Logic; and Zoology and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoological Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 300 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory 40x72 feet, for drill and gymnastic purposes; the heating plant; office of *The Rocky Mountain Collegian*; special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

THE NEW CHEMICAL LABORATORY.—This building is designed after the French Renaissance style of architecture, with the individual grace and picturesque effect of the old French chateaux. It appears in pleasing contrast with the Romanesque structures in the midst of which it is erected. It is constructed of red sandstone rubbed and smoothed. In the interior arrangement, convenience and facility for carrying on efficient chemical analysis are kept in mind.

To the left of the main loggia, on the first floor, is the professors' suite of rooms, including office, balance room and private laboratory—the latter being provided with hoods and direct communication with a storage room in the basement.

To the right the stairway leads to an entrance to the second floor. Directly in front of the main entrance is the qualitative laboratory, 30x38 feet, supplied with working desks large enough to accommodate thirty-two students. The room is provided with nine hoods, storage room and balance room. This room, being an inside room, is lighted by a large sky-light in the roof—a superior system of lighting when the work to be done is considered.

To the left of this laboratory and behind the professor's rooms is the quantitative laboratory, arranged to accommodate twelve students. It is furnished with six laboratory desks, two hoods and a balance room.

All laboratory desks throughout the building are made of quarter-sawed oak tops and butternut sides, drawers, etc. The sinks are placed at the sides of the laboratories. Each desk is provided with gas and water supplies; also a two-inch waste, flush with the top of the desk; this waste takes the place of sinks in the desk and eliminates much uncleanness usually connected with the work. The hoods are furnished with gas and water supplies; also with strong draft, accelerated by steam coils placed in the large vent stacks.

The second floor of the building is arranged into two lecture rooms, each about 26x46 feet. The chemistry lecture room is connected with the apparatus room by a large hood, provided with slides on both sides, making the transfer of apparatus rapid and convenient. There is connection, also, with the museum and chemical cabinet. The geology lecture room is connected with microscopical room and the museum. The basement is used principally for storage and heating purposes, gas generation, and some analytical work.

The Experiment Station occupies the western section of the first floor. It consists of a room for the assistants, a large work room, store room, balance room and a small room for nitrogen determinations.

**HORTICULTURAL HALL.**—The new Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52x64 feet. It is basement, two stories and attic in height. The basement, which is composed of Pleasant Valley red sandstone, stands high above grade line and gives excellent rooms for grafting, experimental work and the storing of implements. The first story of the building has a ceiling height of fourteen feet and is planned to contain one large lecture room, office, assistant's office, herbarium and other small rooms for experimental work. The second floor is arranged for a large museum, with octagon ceiling; also private laboratories, as well as plant, seed and apparatus rooms. The attic is floored and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick, trimmed with Pleasant Valley red sandstone rubbed to a smooth fin-



ish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this Department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated throughout by the best improved system of hot water. The rooms are thoroughly ventilated by modern means, and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

GREENHOUSES AND FORCINGHOUSE.—The new greenhouse recently completed is one wing of a plan which contemplates the addition, at some future time, of a palm-house, and a second wing similar to the one built. Its construction is such that the other parts can be added at any time.

The structure is 25x50 feet and consists of a wrought iron frame securely bolted to cast sills which cap, and are supported by, brick walls rising from a stone foundation. The frame carries the heating pipes and also the shafting from the self-locking ventilating machines. The glazing strips are of clear Gulf cypress, fitted to special castings at either end, and firmly fastened to iron purlins. The house is provided with non-freezing gutters and is glazed with the best greenhouse glass. The benches are of iron, with porous tile bottoms and cypress sides. Two lines of sash at the sides and two at the ridge are connected with geared machines which give perfect control over ventilation.

The frame of the house possesses strength, and at the same time offers little obstruction to light. In plan and details the structure is modern; embracing the best that is known in greenhouse construction. It was purchased of the Lord & Burnham Company, of New York City.

In addition to this greenhouse there has been added a forcing-house, 20x50 feet, made of cypress frame resting upon brick walls, and a glass connection between the forcing-house and the laboratory,



which is 14x14 feet. In this latter house the sides are carried perpendicular to the height of nine feet, affording space for tall plants.

**ORCHARDS AND GROUNDS.**—The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds and cold-frames.

**AGRICULTURAL HALL.**—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for an agricultural museum. The first floor is divided into a hallway and four large, comfortable rooms. Here are found the office of the Professor of Agriculture, churning room, dairy laboratory and seed room. The basement has four apartments, which are used for heating apparatus and storage.

**FARM AND STOCK.**—The farm contains 240 acres, nearly all under cultivation. In addition to this there has been recently purchased 360 acres of excellent grazing land near Fort Collins, containing a reservoir and the spring from which the college grounds are supplied with drinking water.

The live stock consists of Clydesdale grade draft horses, Short-horn, Hereford and Jersey cattle, Shropshire sheep, and Berkshire, Tamworths and Poland China hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will permit.

**MECHANICAL ENGINEERING BUILDING.**—This building includes two large main portions, two stories high, and an ell, one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in charge. The tool room is at the middle of the south side of the room; it is supplied with a good assortment of small tools, such as taps, dies, reamers, gages and milling machine cutters. The tools for cutting, threading and fitting iron pipe are also kept in this room. These tools will handle pipe from one-quarter inch up to two inches. Taps are provided for each size of pipe.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, two 17-inch engine lathes, two 14-inch engine lathes, one 13-inch engine lathe, one

speed lathe, one 20-inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, a universal tool and cutter grinder, a twist drill grinding machine, an emery stand, carrying two wheels 16 inches in diameter, a 36-inch grindstone, a 10-inch sensitive drilling machine, and one power metal saw.

An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting.

At the west end of this story is a well-lighted classroom used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the building is devoted to bench and machine work in wood. There are 37 benches, each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, eight wood-turning lathes, a 16-inch patternmaker's lathe with compound rest, a wood trimmer, a 36-inch grindstone and a good supply of clamps.

In the lower story of the east main portion of the building is the engine room, containing the 50-horsepower Corliss engine, which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gage tester affords a means of correcting steam gages.

Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room, which occupies the upper part of this building, has accommodations for fifty students. In the ell portion of the building are found iron store-room, blacksmith shop and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are twenty-five forges, all attached to a system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks and

skinners. Most of the equipment for this room, including the cupola and brass furnace, was made by the students.

**MECHANICAL ENGINEERING LABORATORY.**—The building is situated directly south of the present Mechanical Engineering Building, and is known as the Mechanical Engineering Laboratory. It is 40 feet wide and 60 feet long, and built of pressed brick.

The object of the work of the Laboratory is to give the advanced students an opportunity to make investigations of the physical properties of materials of construction entering into buildings, machinery and other structures; and also to make tests and examinations of different kinds of boilers, engines, motors, pumps and all kinds of mechanical appliances which may be obtained for the use of the department. A number of pieces of apparatus have been given by generous parties for carrying on this work.

As a great deal of the work of investigation is along the line of steam engineering, a new 80-horse power boiler is placed in the Laboratory in order to have the steam needed close at hand. The boiler is so arranged as to allow of its being subjected to regular commercial and scientific tests, and students are instructed how to find the horsepower, how to test for strength, how to test the quality and quantity of the steam furnished by the boiler and to obtain its efficiency.

To test the quality of steam, that is, to find out the amount of moisture in it, there are on hand four different styles of calorimeters, a Carpenter throttling calorimeter, a Carpenter continuous calorimeter and a Barrus calorimeter. There is also a calorimeter devised and made by the students. In connection with these calorimeters there are thirteen thermometers of a high degree of accuracy. These are cylindrical bulb thermometers. There are also several high-grade steam pipe thermometers, thermometers designed to get the temperature of steam flowing through pipes.

A draft gage is also provided for measuring the draft of the smoke stack in connection with the boiler trials. Provision is also made to secure samples of the chimney gases for chemical analysis, in order to assist in ascertaining the thoroughness of combustion of the fuel. The temperature of the gases may also be taken with a suitable instrument which is provided. Several mercurial pressure and vacuum columns are provided. All instruments are carefully calibrated before tests are made with them.

A large water tank and weighing scales are provided, so that the amount of water used and turned into steam may be ascertained while

the trial is being made. Three steam engines are in the building. One is of 12-horse power, made by the Denver Engineering Company; one of 6-horse power, another of 5-horse power; the latter was made by the students. These engines may be run with different loads and at different speeds. Upon these engines brakes are placed, so that a load on the engine may be accurately measured. The students are instructed how to set eccentrics and valves, and how to ascertain the horse power of the engine. For this latter purpose there are on hand two Crosby steam engine indicators, with five springs each, for varying pressures of steam. Brumbo pulleys are ready for use with the indicators and are used to make the stroke of the indicators proportionate to the stroke of the engine. There is also a reductor at hand, for the same purpose, made by Schaeffer & Budenburg, New York.

A United States Observatory barometer, made by Henry J. Green, of Brooklyn, is in the building, to be used in connection with the boiler, engine and pressure tests of various kinds. The airbrake appliance, made by the Westinghouse Airbrake Company, is in this building. It consists of a complete outfit for engine, tender and one car, including all the tanks, valves and engineer's triple valve. Besides using this for the purpose of investigation, the air pump attached is used to furnish air to other kinds of pneumatic machinery. There is also a quick action triple valve, made by the New York Airbrake Company.

There are micrometers and verniers ready for use, which will measure in thousandths of an inch. An ingenious water meter registers the number of gallons of water passing through a pipe in a given time. This is used in connection with the hydraulic work. The planimeter is used for measuring the area of diagrams drawn upon paper, and is used in connection with the figuring out of test diagrams of various kinds. It is of the Amsler design. Revolution counters are used in connection with the engine and motor tests.

There are two steam pumps in this laboratory, one made by George F. Blake, of New York, the other by M. F. Davidson, of Brooklyn, N. Y. The setting of valves and the testing of the efficiency of these pumps are features of the work. Nine steam gages have been presented by different makers, which give a good variety upon which to make investigations. For testing gages, two first-class machines are ready; one for testing pressure gages, the other for testing vacuum gages.



Two sizes of the Hancock inspirator furnish means of studying this highly interesting instrument. Tables are arranged at convenient intervals in the room at which the students are first required to make their theoretical and mathematical calculations, and afterwards compare the practical results of the tests with these calculations. Tabulated results of all tests are made upon blanks of suitable form.

**CIVIL AND IRRIGATION ENGINEERING.**—The building formerly known as the Dormitory has been remodeled and fitted up for the use of the Department of Civil and Irrigation Engineering.

The main classroom is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A room on the second floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On the first floor are the offices, and the room for carrying on the work of the section in the Experiment Station. The office of the Director of the Experiment Station is also in this building. There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor to lessen injurious vibration is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000 pounds, for testing the flow of water through orifices and over weirs. Here also is placed a Pelton water motor and the cement-testing instrument, together with other equipment, pipes, pressure gages, etc., for experimentation. The experiments on measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances; spherometers; gages; gyroscope; air-pump and accessories; thermometers; mirrors and lenses, projecting lantern; electrical machines; dynamo; batteries; standard B. A. ohm; Queen 100,000 ohm



resistance coil; astatic, sine, tangent and d'Arsonval and other galvanometers; Edelmann ohmmeter; quadrant; electrometers; voltmeters; telephones; standard cells; a complete set of standard units; and much minor equipment.

For use in Engineering and Hydraulics it has Colorado, Lallie, Price, Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube; registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gages; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water motor, presented to the Department by the Pelton Water Wheel Co., a water meter presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and several Buff and Berger transits; six levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; integrator; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

DOMESTIC SCIENCE.—The Department of Domestic Science occupies a building which is fitted up for a home. On the lower floor is a large kitchen 25x34 feet in size. It is well lighted and contains furniture and classroom utensils so that a large class can be accommodated. Adjoining this room is a smaller kitchen, which is very convenient for extra work, or for use on occasions of entertaining, since it opens into the dining room. This latter room is used only for the smaller functions and special demonstrations in table setting, sewing, etc.

At the end of the hall is situated the laundry, which is furnished with porcelain-lined stationary wash-tubs, laundry stove and tank, cupboard, ironing-boards, etc. The other room on this floor is a store-room.

On the second floor, to the right on entering the hall, is a reception room, suitably furnished. Back of this is a bedroom, which is designed to be a model room. Another room opens to the right at the lower end of the hall. This contains two apartments, conveniently equipped with bath-room appliances. These rooms are for the use of such young women in the College as may desire to use them. Situated as they are, immediately over the laundry, there is no difficulty in heating the water.

The classroom, also 25x34 feet, is located on the south side of the building immediately over the kitchen. It is furnished with sewing machines, tables and large cases. The latter are used as receptacles for work and an individual compartment is supplied each student.

This same room serves additional purposes. Sometimes it is a reception-room, at other times a dining-room; as the same tables are used for cutting, sewing and dining. The Chinaware is also kept in this room in nicely arranged closets. From the rear of the classroom one enters the fitting-room, which, in addition to general furniture, contains a large closet where garments in process of making, materials, etc., can be protected.

The accommodations and appliances are ample for classroom and laboratory work in everything connected with household management.

**MILITARY SCIENCE AND TACTICS.**—This Department has two hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice and artillery firing.

**SCIENTIFIC AND TECHNICAL APPARATUS.**—All departments of science have elaborate, modern and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy and entomology is done with the aid of apparatus representing a cost of \$30,000.

The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over \$26,000.



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# **First and Second Sub-Freshman Years**

**Leading to Freshman Year  
Of all Courses.**





# FIRST SUB-FRESHMAN YEAR.

## FALL TERM.

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| Algebra, 5.             | { | P. M.—Drawing and<br>Recitations. |
| Elementary Rhetoric, 5. |   |                                   |
| History, 5.             |   |                                   |

## WINTER TERM.

|                                     |   |                                  |
|-------------------------------------|---|----------------------------------|
| Algebra, 5.                         | { | P. M.—Shop.<br>Domestic Science. |
| Elementary Rhetoric, 5.             |   |                                  |
| $\frac{1}{2}$ Physiology.           |   |                                  |
| $\frac{1}{2}$ General History. } 5. |   |                                  |

## SPRING TERM.

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| Algebra, 5.             | { | P. M.—Drawing and<br>Recitations. |
| Elementary Rhetoric, 5. |   |                                   |
| American Literature, 5. |   |                                   |

# SECOND SUB-FRESHMAN YEAR.

## FALL TERM.

|                               |   |                                   |
|-------------------------------|---|-----------------------------------|
| Geometry, 5.                  | { | P. M.—Nature Study<br>Laboratory. |
| Nature Study, 5.              |   |                                   |
| German, French or Spanish, 5. |   |                                   |

## WINTER TERM.

|                               |   |                                                                                                                         |
|-------------------------------|---|-------------------------------------------------------------------------------------------------------------------------|
| Geometry, 5.                  | { | P. M.— $\frac{1}{2}$ Physical Labor-<br>atory.<br>$\frac{1}{2}$ Shop.<br>$\frac{1}{2}$ Sewing Machine<br>Practice Work. |
| Physics, 5.                   |   |                                                                                                                         |
| German, French or Spanish, 5. |   |                                                                                                                         |
|                               |   |                                                                                                                         |

## SPRING TERM.

|                               |   |                                                                      |
|-------------------------------|---|----------------------------------------------------------------------|
| Geometry, 5.                  | { | P. M.—Shop.<br>$\frac{1}{2}$ Cooking.<br>$\frac{1}{2}$ Summer Gowns. |
| Nature Study, 5.              |   |                                                                      |
| German, French or Spanish, 5. |   |                                                                      |

## AGRICULTURAL COURSE.

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### FRESHMAN YEAR.

#### FALL TERM.

|                           |   |                                       |
|---------------------------|---|---------------------------------------|
| College Algebra, 5.       | } | P. M.— $\frac{1}{2}$ Mechanical Draw- |
| Rhetoric, 5.              |   | ing.                                  |
| Carpentry and Joinery, 5. |   | $\frac{1}{2}$ Shop.                   |

#### WINTER TERM.

|                  |   |             |
|------------------|---|-------------|
| Trigonometry, 5. | } | P. M.—Shop. |
| Literature, 5.   |   |             |
| Rhetoric, 3.     |   |             |
| Themes, 2.       |   |             |

#### SPRING TERM.

|               |   |                                       |
|---------------|---|---------------------------------------|
| Physics, 5.   | } | P. M.— $\frac{1}{2}$ Physical Labora- |
| Surveying, 5. |   | tory.                                 |
| German, 5.    |   | $\frac{1}{2}$ Surveying.              |

### SOPHOMORE YEAR.

#### FALL TERM.

|                            |   |                          |
|----------------------------|---|--------------------------|
| Mechanics, 5.              | } | P. M.—Zoological Labora- |
| Mediaeval Institutions, 2. |   | tory, 2.                 |
| Zoology, 3.                |   | Dairying Laboratory,     |
| Dairying, 5.               |   | 3.                       |

#### WINTER TERM.

|                      |   |                          |
|----------------------|---|--------------------------|
| Zoology, 2.          | } | P. M.—Zoological Labora- |
| English History, 3.  |   | tory, 3.                 |
| Stock Breeding, 5.   |   | Library, 2.              |
| Arid Agriculture, 5. |   |                          |

SPRING TERM.

|                                   |   |                                                     |
|-----------------------------------|---|-----------------------------------------------------|
| Farm Management or Hydraulics, 5. | } | P. M.—Entomological Laboratory, 3.<br>Histology, 2. |
| The Drama, 3.                     |   |                                                     |
| Entomology and Bee Keeping, 4.    |   |                                                     |
| Chemistry, 3.                     |   |                                                     |

JUNIOR YEAR.

FALL TERM.

|                                       |   |                                                                                      |
|---------------------------------------|---|--------------------------------------------------------------------------------------|
| Horticulture, 5.                      | } | P. M.— $\frac{1}{2}$ Horticultural Laboratory.<br>$\frac{1}{2}$ Chemical Laboratory. |
| Chemistry, 5.                         |   |                                                                                      |
| $\frac{1}{2}$ Physiology, 5.          |   |                                                                                      |
| $\frac{1}{2}$ Landscape Gardening, 2. |   |                                                                                      |
| $\frac{1}{2}$ Physiology, 3.          |   |                                                                                      |

WINTER TERM.

|                                    |   |                                                           |
|------------------------------------|---|-----------------------------------------------------------|
| Horticulture, 5.                   | } | P. M.—Physiological Botany, 3.<br>Chemical Laboratory, 2. |
| $\frac{1}{2}$ Meteorology, 5.      |   |                                                           |
| $\frac{1}{2}$ Canal Management, 5. |   |                                                           |
| Chemistry, 5.                      |   |                                                           |

SPRING TERM.

|                                   |   |                            |
|-----------------------------------|---|----------------------------|
| Hydraulics or Farm Management, 5. | } | P. M.—Chemical Laboratory. |
| Stock Feeding, 5.                 |   |                            |
| Agricultural Chemistry, 2.        |   |                            |
| Recent History, 3.                |   |                            |

SENIOR YEAR.

FALL TERM.

|                           |   |                                                    |
|---------------------------|---|----------------------------------------------------|
| Logic, 3 (Required).      | } | P. M.—Chemical Laboratory.<br>Dairying Laboratory. |
| Literature, 2 (Required). |   |                                                    |
| Veterinary Science, 5.    |   |                                                    |
| Chemistry, 5.             |   |                                                    |
| Horticulture, 5.          |   |                                                    |
| Breeds of Live Stock, 5.  |   |                                                    |
| Dairying, 5.              |   |                                                    |

## WINTER TERM.

|                                           |   |                            |
|-------------------------------------------|---|----------------------------|
| United States Constitution, 3 (Required). | } | P. M.—Chemical Laboratory, |
| Seminar, 1 (Required).                    |   | 5.                         |
| Veterinary Science, 5.                    |   | Bacteriological Lab-       |
| Chemistry, 5.                             |   | oratory, 2.                |
| Farm Bacteriology, 5.                     |   | Embryological Labo-        |
| Judging Live Stock, 3.                    |   | ratory, 3.                 |
| Embryology, 3.                            |   |                            |
| Evolution, 3.                             |   |                            |

## SPRING TERM.

|                                  |   |                            |
|----------------------------------|---|----------------------------|
| Political Economy, 4 (Required). | } | P. M.—Chemical Laboratory, |
| Seminar, 1 (Required).           |   | 5.                         |
| Veterinary Science, 5.           |   | Entomological Labo-        |
| Advanced Botany, 5.              |   | ratory, 2.                 |
| Chemistry, 5.                    |   | Dairying Laboratory,       |
| Advanced Entomology, 3.          |   | 3.                         |
| Judging Live Stock, 3.           |   |                            |
| Dairying, 2.                     |   |                            |

## AGRICULTURE.

The new course in Agriculture, as presented in this catalogue for the first time, is an unusually attractive one. We would not indicate that other courses here offered are not equally attractive to those interested in them, but we wish to call attention briefly to the Agricultural course, as a whole, as a means of obtaining an undergraduate foundation for general usefulness. The character of the college training here offered is one which is steadily gaining in public favor, and one which is receiving its share of praise from some of our men of letters who think deeply of human progress. The new idea is one of practical utility. That training which not only makes for mental development but also fits the physical powers to supplement the mental and gives the individual a bent and ability to so do a part of the world's work that he will be a factor in the world's progress is the sort of training which should be sought after and fostered. Our agricultural colleges offer this sort of training.

Extending our course one year, adding to, and rearranging the studies and laboratories, puts our work on a par with that offered by universities and makes a degree taken here mean more than ever before.

There are three general purposes which the Agricultural course here offered is designed to accomplish. *First*, it is a broad course, in every sense of the word, and will give a man a good general training. It is strong in language, especially English. The two years' course in German gives the best of training, and will enable students to make use of the German scientific investigations, which are stronger along agricultural lines than those of any other foreign country. The course contains enough of the humanizing studies to give the student some conception of the foundation of society and the progress of civilization. It contains enough mathematics for all practical purposes outside of such specialties as astronomy or engineering. It is strong enough in science to give a broad conception of evolution and the philosophy of life and to fit for special work. It is strong in laboratory and industrial features which train the hand, illustrate methods and purposes of investigation, and, along with the military drill, will insure physical health and manly bearing. *Second*, the course is designed to give such substantial foundation as will enable the student to enter upon and complete in the shortest possible time post-graduate courses in any of the professions. It would be difficult to arrange a more complete and effective course as a foundation for the study of medicine, law, pedagogy, chemistry and many other specialties. *Third*, the main object of the course outside of supplying a general education is to fit the man for that most difficult and independent of all professions, agriculture in its various phases. We expect the average student who finishes the prescribed studies here to be able to follow the profession of theoretical agriculture, as a teacher or investigator in our agricultural colleges and experiment stations, or to enter that practical, self-supporting post-graduate work on the farm which will make him prosperous, useful and happy through life. It can hardly be said that there is a science of farming, as every farm presents a different set of scientific and practical problems which must be worked out by the operator. No course of study can attempt to cover all such individual variations. What we do aim to do is to supply the theoretical knowledge and the mental training which will make the practice less difficult and more remunerative.

With such theoretical instruction as is here offered, the farmer will be able to meet his difficulties and solve his problems in a manner which will, in every way, accrue to his success and general welfare. The different branches of agricultural science here offered will



give some idea of the wide scope of such study and enable the farmer to continue his investigations on his farm with that satisfaction which adds so much to life.

One of the most attractive features of the Agricultural course is the elective scheme in the Senior year. Throughout the course fifteen hours recitation and twenty hours of laboratory work are required. In the Senior year the course is so arranged that five hours in the Fall and Spring terms and four hours in the Winter term are devoted to studies required of all students alike. The remaining ten or eleven hours to fill in the time is devoted to such studies as the student may choose from those listed in the schedule. This gives each one considerable latitude in following out his natural inclination for certain special subjects, and will be a material aid to the student who, at the end of the Junior year, decided to follow some specialty. Suppose that after having taken the college course in Agriculture for three years, the student decides to follow Veterinary Science and raise live stock. Under this system he is able to elect live-stock studies and Veterinary Science throughout the Senior year. If he enjoys chemistry, or horticulture, or dairying, he will make these subjects his majors in electing his year's work. We believe this feature adds strength to the Agricultural course, and at the same time enables the thoughtful student to pursue the work leading to his graduation in a way that will be most pleasing and satisfactory to himself. No professor will be required to give an elective course unless three or more students apply for it.

As a whole, the course offers a happy combination of the lecture, the laboratory, the library and the elective, the most up-to-date methods of collegiate instruction and study.

DEPARTMENTAL INSTRUCTION.—In the Fall term of the second Sub-Freshman year the student begins to acquire some information about the underlying principles of Agriculture in the Nature Study given that term. This is supplemented and strengthened by Nature Study laboratory work on the farm and the garden two hours each afternoon.

In the Fall term of the Sophomore year a beginning course in Dairying is given, consisting of text-book work five hours per week, and laboratory work illustrating the text three afternoons per week. During the Winter term of the Sophomore year students devote five hours of recitation each week to the subject of Stock Breeding, and five hours to the History and Practice of Arid Agriculture. This

is the first time a course in arid agriculture has been offered, and it should be attractive to all those interested in farming in regions of scanty rainfall. The subject of Farm Management alternates with Hydraulics in the Spring terms of the Sophomore and Junior years. This enables a doubling up of classes so that the Juniors and Sophomores will take Hydraulics one year and Farm Management the next in the same class.

The dairy laboratory will be open three afternoons per week in the Spring term of the Sophomore year to accommodate the Domestic Science course students and others who may wish to take dairying at that time.

Stock-feeding is given five hours each week through the Spring term of the Junior year. This course is of much practical value to every one, as it gives the science of nutrition, which is applicable to man as well as to animals. The student also learns to compute rations for the different classes of farm animals, for maintenance, work or meat production, according to their individual requirements.

In the Senior year the seminar required one hour each week in the Winter and Spring terms will give the students practice in doing outside reading as directed along the lines of study given in the Agricultural and Horticultural departments. Upon this reading they will prepare essays to be read and discussed in class. This will be most valuable instruction, as it will train the student in finding and reasoning about the opinions of others and give him reliance in his power of forming opinions for himself from his own discoveries and the facts recorded by others. The electives offered by this department for the Senior year are the breeds of Live Stock and Stock Judging through the year; Dairying in the Fall and Spring terms, and Farm Bacteriology during the Winter term. The Dairying and Farm Bacteriology are laboratory studies, and could not be taken by those electing Chemistry, which is also a laboratory study unless special arrangement was made to divide the laboratory work or enable extra hours to be devoted to it.

**FACILITIES FOR INSTRUCTION.**—Our facilities and equipment for offering instruction are almost unsurpassed by any agricultural school and they are continually being increased and improved. Classroom work is made more interesting by photographs, lantern slides and museum specimens.

Our dairy laboratory is well equipped with modern apparatus. A new gasoline engine furnishes the power to run the machine sep-

arators and churns, and a boiler furnishes steam for the large milk tester, sterilizer and Pasteurizer, and for heating water. Here are different forms of churns, separators, butter-workers and milk and curd testers. We now have well-equipped microscopes, sterilizers, incubators, and all the equipment necessary for practical work in Bacteriology. The students are given enough instruction in this line to enable them to understand and control these tiny organisms which may be so beneficial or harmful to the dairyman. The student handles the milk from the cow to the butter tub or print, by either the separator or deep cold setting process; and learns methods of valuing milk and paying for it according to test.

The college farm of two hundred and forty acres is happily situated for the purposes of instruction. Here we have exemplified most of the problems of getting water to land and of carrying off the surplus and seepage that will arise anywhere in the State. The main irrigation water supply of the pipe line nearly a mile from the canal; it is then used directly on the land or may be carried by an inverted siphon to a reservoir, and distributed from there to the various fields. A new storage reservoir has been purchased, and inlets and outlets so arranged that hereafter the farm will be supplied with late water as well as the early supply. This new reservoir catches the water draining through Soldier Canon, and it is believed will be more than adequate for our needs. The gathering of underground water and bringing it to the surface for irrigation purposes is exemplified by more than a mile of ditches and drains that tap the sloughs west of the farm, and provide, free of charge a large part of the irrigation water used on the farm. On the other hand, the carrying away of surplus water and the retaining of seepage land is here shown in all its phases. Some of the finest crops on the farm are grown on what was at one time a cat-tail swamp, and which has been reclaimed by a single line of tile.

Especially valuable to the student is the fact that the farm is a part of the Experiment Station. He has the advantages of watching the several experiments and noting the results. Here he can see and become acquainted with all the new forage and grain crops that are heralded by the seed trade, learn their adaptability to Colorado soil and conditions, while reference to the very complete library of the publications of all the other experiment stations will enable him to form a correct judgment as to their value for Colorado as compared with their usefulness in other parts of the country. This feat-

ure alone will save the student a great deal of time and money when he comes to carrying on a farm of his own.

Since Colorado is a great stock-producing State, one would expect the Live Stock department to be well supplied; nor will he be disappointed. The production of meat naturally holds the first place, and the possibilities in this line are exemplified by the finest herd of registered Shorthorns to be found in the West. Several additions to the herd have been made recently at large expense. The Herefords which are so well thought of on Western ranges are represented by a small herd of the best specimens which could be obtained, and a friend of the College is now having imported for us a choice herd of the Polled Angus breed. For the dairy we have a herd of choice registered Jerseys, and also through the generosity of the person alluded to above, a splendid herd of pedigreed Ayrshires imported from Scotland. It is the avowed intention of the College authorities to add specimens of other breeds as fast as College finances will permit.

Swine are represented by the leading breeds, recent purchases of Tamworths and Poland Chinas. We are now assured a new swine house and a new horse barn. We have representatives of some of the best breeds of chickens. We already have a choice flock of Shropshire sheep, and will very soon add one or two other leading breeds. Experiments are continually being carried out in stock breeding, and it will be seen that the student has excellent opportunities for studying the various branches of the live-stock industry. The Board has recently decided to purchase some fine horses, so our equipment, as good as it is, will be greatly improved in the near future.

This department also possesses a well-equipped dark-room with the apparatus necessary for securing photographs of plants and crops, live stock, implements and classes at work (valuable for classroom instruction), cuts for bulletins and other matter requiring illustrations of the work of the College.

In this department also is published a bi-monthly magazine of arid agriculture, the *Agricola Aridus*, and the agricultural students have formed an Agricultural Club, which does most excellent work. In addition to this a grange organization holds regular meetings at the College. It will be seen that in addition to our general equipment, the student is thrown in contact with most active agricultural work in all its branches, so his education is not confined to mere classroom routine. While our graduates of the past have become most successful in their chosen work, the graduates of the future have much to look forward to in increased facilities and advantages.



## HORTICULTURE AND BOTANY.

(See page 33 for Course of Study.)

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### HORTICULTURE.

The study of Horticulture is begun in the Fall term of the second Sub-Freshman year with laboratory work in Nature Study, and continued through three terms and a half.

An effort is made to give practical instruction in Horticulture so far as the variation in climate and other conditions will permit. On the other hand, great stress is laid on imparting to the student a thorough knowledge of the scientific principles which are the foundation of the art. Methods necessarily differ greatly in the various sections of the State, but with a knowledge of the principles of Horticulture the student should be able to adapt himself to the conditions of the locality in which he may be located.

**NATURE STUDY.**—Two hours each afternoon for one-half of the Fall term in the second Sub-Freshman year are devoted to learning the simpler horticultural operations. Each student is given practice in budding, grafting and making grafting wax. The different kinds of spraying mixtures are made and applied, wheat and oats are treated for smut, and seed potatoes for root fungi. Tree planting is given special attention, each student being required to plant a number of trees. In the greenhouse a general course in handicraft is given which includes the propagation of plants, mixing soils, sowing seed, transplanting, packing plants for sending by mail, etc.

**PRINCIPLES OF PLANT CULTURE.**—The phenomena of germination are first considered, the subject of the relation of the plant to its surroundings is taken up, and includes a discussion of soils, cultivation, fertilization, moisture, heat, cold, etc. The propagation of plants is discussed at length. This includes the propagation by seeds, cuttings, layers, buds and cions. The latter part of the term is devoted to a study of the principles of vegetable growing.

During one half of the term the students work two hours each afternoon in the laboratory. The work begun as Nature Study is



continued. Advanced practical work is provided, and a portion of the time is devoted to simple experiments in plant physiology.

The course extends through the Fall term of thirteen weeks, and is required of the Juniors in the Agricultural and Domestic Science courses.

**THE PRINCIPLES OF FRUIT GROWING.**—During the Winter term of thirteen weeks the Agricultural Juniors take up the study of fruit growing. The theory and practice of orchard management is considered in detail. The following topics are among those discussed: trees, choice of varieties; cultivation, fertilization, pruning and spraying of the orchard; harvesting and marketing the crop. Each of the fruits that are commonly grown in the State is considered more or less in detail as its importance demands.

The latter part of the term is devoted to a study of the principles of crossing, hybridizing and plant breeding.

**PLANT PHYSIOLOGY.**—The study of plant physiology as related to the practical operations of Horticulture is designed to give the student an understanding of why certain things are done and how the results are attained. The subject is considered from the horticulturist's standpoint, and must be preceded by the course in plant histology. With a knowledge of the minute structure of plants the student is ready to understand how roots, stems and leaves perform their work, and to give a scientific explanation of the various horticultural operations. Elective for Agricultural students in the Winter term of the Senior year.

**LANDSCAPE GARDENING.**—This subject is taught in the first half of the Fall term of the Junior year, and is required of the students in the Agricultural, Architectural and Domestic Science courses. The principles of landscape gardening are taught as a fine art. The purpose of the course is primarily to impart to the student an idea of good taste in arranging and planting home grounds. Then the subjects of parks, cemeteries and school grounds are considered. Other topics discussed are the position of the house, the location of walks and drives, making lawns and their care. Particular attention is given to the grouping of shrubs and the use of flowers on the lawn. A study of the trees and plants growing on the campus is also made a feature of the work.

The different topics are illustrated with the aid of the stereopticon. Thus the contrasts between good and bad planting are presented graphically to the student, as are the other topics that are discussed.

### FLORICULTURE.

During the Winter term of the Junior year students in the Domestic Science course are offered an elective in Floriculture and kitchen gardening. The instruction is divided between classroom work and practical work in the laboratory and the greenhouses. An effort is made to equip the future home maker or teacher with a practical knowledge of gardening operations.

### BOTANY.

Three terms are devoted to the study of Botany. The subject is taught from living specimens so far as possible, the text-book is used for reference, but is resorted to for classroom work only when suitable material for study cannot be obtained.

**NATURE STUDY.**—Required of all students in the Spring term of the second Sub-Freshman year. This subject is taught entirely as a laboratory study and mainly with the idea of developing the powers of observation. The student is trained from beginning to investigate and to give reasons for his conclusions. With the living objects before him the curiosity of the student is aroused, consequently the learning of names and of plant relations becomes a pleasure. A study is made of the various plant organs, their relations to each other and to the plant. Two weeks are devoted to seedlings, then the roots, stems, leaves and fruit are taken up in turn.

This term's work is supplemented by a half term of laboratory work given in the preceding Fall term.

**SYSTEMATIC BOTANY.**—No regular place is provided for the continuance of the work begun as Nature Study. But some time is devoted to this subject in connection with other studies. Special attention is given to the classification of grasses.

**PLANT HISTOLOGY.**—During the Winter term the Agricultural and Veterinary Juniors devote two hours a day to the study of the minute structures of plants. The student learns to use the compound microscope to make sections and to investigate. The agricultural side of the subject is made prominent, and the course is made the foundation of the study of plant physiology, which is taught as a horticultural study in the Senior year.

**PLANT DISEASES.**—The study of plant diseases is offered as an elective to the Agricultural students in the Spring term of the Senior year. This is conducted mainly as a laboratory study and is designed to give the student a knowledge of economic fungi. This work must be preceded by all the other courses in Botany.

## ZOOLOGY.

(See page 33 for Course of Study.)

**PHYSIOLOGY.**—In the Winter term of the first Sub-Freshman year physiology is taught three times a week to all students who can not pass a satisfactory examination in the subject, or present acceptable grades from accredited schools.

During the Fall term of the Junior year, higher physiology is taken by the students in courses in Agriculture, in General and Domestic Science, and in Veterinary Science. *Outlines of Human Physiology* by Schenck and Gurber will be used as a text-book in connection with lectures and demonstrations in the classroom. There will be three recitation periods a week during the first half of the term and five periods during the last half. Prerequisite, Sub-Freshman physiology or its equivalent and vertebrate Zoology.

For teaching this subject the department is well equipped with skeletons of infant and adult, articulated and disarticulated, also a *papier mache* manikin of the entire human body with the organs colored as in life and removable, and enlarged models of special parts as eye, ear, larynx, brain, etc.

**INVERTEBRATE ZOOLOGY.**—This subject is taught to those taking courses in Agriculture, General and Domestic Science and Veterinary Science, during the Fall term of the Sophomore year. There will be three morning lectures and two afternoon laboratory periods each week. Much stress is placed upon the laboratory work where the student sees and studies typical forms of the different groups of the animal kingdom, beginning with the lowest and simplest and later taking up those that are higher in structure and development. In order to develop definiteness and accuracy of observation, many carefully labeled outline drawings are required. While form, size and color are matters of more or less interest in themselves, the chief object is always to lead the student to see the relation existing between form and function and between the organism as a whole and its environment.

The department is well provided with microscopes, dissecting instruments, charts, models and has a large collection of invertebrate animals in the College museum.

**VERTEBRATE ZOOLOGY.**—This subject is taught during the Winter term of the Sophomore year as a continuation of the preceding subject. It is required of the students in the Agricultural and Veterinary courses only. There are two lectures and three laboratory periods a week. The methods of instruction are the same as in case of Invertebrate Zoology and the department is equally equipped for the work. Invertebrate Zoology is a necessary prerequisite for this course.

**ENTOMOLOGY AND BEEKEEPING.**—These two subjects, together, are assigned four morning and two afternoon periods per week during the Spring term of the Sophomore year. They are required of Agricultural students and may be elected by ladies taking the course in General and Domestic Science. Both subjects are taught with a special view to their economic importance. As a basis for this, the student first learns the general structure and metamorphoses of insects. Each student is required to make a small collection representing the principal orders of insects and to properly mount and classify them. Then the leading injurious insects are taken up separately and their habits learned and the best known methods of preventing their injuries discussed.

Under the head of Beekeeping, the special structure and wonderful habits and life history of the honey bee are first taught. Then enough in regard to the management of an apiary is given to enable the student to get an insight into the business of beekeeping and decide whether or not he wishes to pursue the subject farther with a view of managing an apiary for himself.

For this work the College is equipped with every facility for collecting, rearing and mounting specimens. As a collecting ground, Colorado is unexcelled, and there is an insectary and apiary in connection with the department. Also a mounted collection of insects numbering over 50,000 specimens, among them a large number of types, particularly in the orders Hemiptera and Hymenoptera.

**ADVANCED ENTOMOLOGY.**—Anyone desiring to specialize along this line will be allowed to elect entomology for five morning and five afternoon periods a week during the Spring term of the Senior year.

**HISTOLOGY.**—During the Spring term of the Sophomore year, histology is required of students in the Agricultural, Veterinary and General and Domestic Science courses. The subject is taught by means of lectures and laboratory work during two afternoon periods a week throughout the term. So far as possible, the student is required to



prepare mounts of various tissues for study. The department is provided with compound and dissecting microscopes, microtomes, books of reference, and a large series of permanently prepared microscope slides showing the tissues of the various organs in vertebrate animals, and other needed equipment for the work.

COMPARATIVE ANATOMY.—The instruction given in this course is really a continuation of what was given in the two terms of Zoology. Special stress is laid upon a comparison of tissues, organs and systems, chiefly of vertebrate animals. This subject is required of students taking the Veterinary Science course.

ANIMAL PARASITES.—One lecture a week to students taking the course in Veterinary Science. The principal parasites, internal and external, attacking domestic animals, will be considered, also the remedial and preventive measures that may be employed against them.

EMBRYOLOGY.—This subject is taught during the Winter term of the Senior year to students in courses in Agriculture, General and Domestic Science, and Veterinary Science. There are three morning lectures and three laboratory periods devoted to the subject each week. Instruction will be given in the general principles of development and inheritance which will be followed with a comparative study of the development of *Amphioxus*, frog, chick, and man. Illustrated by wall charts, wax models, and especially prepared microscopic mounts. In the laboratory the student will study the structure of the germinal tissue, maturation and fertilization and segmentation of the ovum, and the formation of the germ layers and will watch the development of the eggs of the frog and chick.

EVOLUTION.—The general principles underlying the development of organic beings, the laws of inheritance, and the history of the evolution idea, will be discussed in a series of lectures given three times a week during the Winter term of the Senior year. Illustrated by the stereopticon.



## MECHANICAL ENGINEERING.

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### FRESHMAN YEAR.

#### FALL TERM.

|                           |   |                                       |
|---------------------------|---|---------------------------------------|
| College Algebra, 5.       | } | P. M.— $\frac{1}{2}$ Mechanical Draw- |
| Rhetoric, 5.              |   | ing.                                  |
| Carpentry and Joinery, 5. |   | $\frac{1}{2}$ Shop.                   |

#### WINTER TERM.

|                                    |   |             |
|------------------------------------|---|-------------|
| Trigonometry, 5.                   | } | P. M.—Shop. |
| English Literature, 5.             |   |             |
| Mechanical Drawing (Lettering), 2. |   |             |
| Rhetoric, 3.                       |   |             |

#### SPRING TERM.

|                     |   |                                       |
|---------------------|---|---------------------------------------|
| Physics, 5.         | } | P. M.— $\frac{1}{2}$ Physical Labora- |
| Surveying, 5.       |   | tory.                                 |
| College Algebra, 5. |   | $\frac{1}{2}$ Surveying.              |

### SOPHOMORE YEAR.

#### FALL TERM.

|                          |   |             |
|--------------------------|---|-------------|
| Mechanics, 5.            | } | P. M.—Shop. |
| Analytics, 5.            |   |             |
| Drawing, 2.              |   |             |
| Descriptive Geometry, 3. |   |             |

#### WINTER TERM.

|                           |   |             |
|---------------------------|---|-------------|
| Differential Calculus, 5. | } | P. M.—Shop. |
| Workshop Appliances, 5.   |   |             |
| Drawing, 2.               |   |             |
| Descriptive Geometry, 3.  |   |             |

SPRING TERM.

|                                    |   |             |
|------------------------------------|---|-------------|
| Integral Calculus, 5.              | } | P. M.—Shop. |
| Special Machines or Hydraulics, 5. |   |             |
| Drawing, 5.                        |   |             |

JUNIOR YEAR.

FALL TERM.

|                             |   |                            |
|-----------------------------|---|----------------------------|
| Principles of Mechanism, 5. | } | P. M.—Chem. Laboratory, 3. |
| Strength of Materials, 5.   |   | Strength of Mat. Lab-      |
| Chemistry, 5.               |   | oratory, 2.                |

WINTER TERM.

|                    |   |                                  |
|--------------------|---|----------------------------------|
| Chemistry, 5.      | } | P. M.—Chemical Laboratory,<br>5. |
| Drawing, 2.        |   |                                  |
| Machine Design, 3. |   |                                  |
| Steam Boilers, 5.  |   |                                  |

SPRING TERM.

|                                    |   |             |
|------------------------------------|---|-------------|
| Steam Engine, 5.                   | } | P. M.—Shop. |
| Metallurgy, 3.                     |   |             |
| Special Machines or Hydraulics, 5. |   |             |
| Pumping Machinery, 2.              |   |             |

SENIOR YEAR.

FALL TERM.

|                              |   |             |
|------------------------------|---|-------------|
| Gas and Oil Engines, 2.      | } | P. M.—Shop. |
| Steam Engine Design, 3.      |   |             |
| Transmission of Power, 3.    |   |             |
| Thermo-Dynamics, 5.          |   |             |
| Compressed Air Machinery, 2. |   |             |

## WINTER TERM.

|                                           |   |             |
|-------------------------------------------|---|-------------|
| Thermo-Dynamics, 5.                       | } | P. M.—Shop. |
| Heating and Ventilation, 3.               |   |             |
| Railway and Mechanical Engineering,<br>2. |   |             |
| Contracts and Specifications, 1.          |   |             |
| Seminar, 1.                               |   |             |
| Engine Design, 3.                         |   |             |

## SPRING TERM.

|                                           |   |                               |
|-------------------------------------------|---|-------------------------------|
| Thesis, 3.                                | } | P. M.—Engineering Laboratory. |
| Engineering Design, 2.                    |   |                               |
| Electrical Machinery, 3.                  |   |                               |
| Railway and Mechanical Engineering,<br>2. |   |                               |
| Political Economy, 4.                     |   |                               |
| Seminar, 1.                               |   |                               |

GENERAL STATEMENT.—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops and experimental laboratory. The studies of this course, which are in common with other courses, are enumerated and described elsewhere in this catalogue; the others are:

Drawing.

Carpentry and Joinery; also wood-working machinery.

Pattern making and foundry work.

Forge work.

Machine and vise work in metals.

Principles of mechanism.

Strength of materials.

Boilers.

The steam engine.

Machine design, machinery and mill work.

**DRAWING.**—Free-hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems; orthographic and isometric projections and projection of shadows; development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings.

Students are taught how to make careful tracings from their drawings, and from these tracings how to make copies by the blue process; the black process is also taught. Considerable copying of machinery from good examples is required; there are in the drafting room for this purpose, working drawings from prominent manufacturers, and from the engineering department of the United States Navy.

The students receive careful instruction in lettering working drawings, so that in addition to being skillfully lettered, they shall be easily read and understood. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

**CARPENTRY AND JOINERY.**—The classroom work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

For the purpose of classroom illustration, the department possesses a good collection of models of the various joints used in timber work in building construction. The strength of various timber joints used in building construction is considered.

**PATTERN-MAKING AND FOUNDRY WORK.**—The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in the foundry, the proper construction of core boxes and the various materials from which they may be made. Core mixtures, core making, baking and finishing, receive careful consideration. The subject of core ovens is considered with reference to their form, construction and manage-

ment. Various types of cupola furnaces are discussed, methods of lining, introduction of the blast, the placing of tapping and slag holes, different forms of tuyeres.

FORGE WORK is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening and annealing.

MACHINE WORK AND VISE WORK are taught in a similarly thorough and careful manner.

PRINCIPLES OF MECHANISM are studied with reference to the combinations of which machines are composed, and the study of designs for the communication of motion by means of gears, belts, links, etc., methods of designing parallel motions, quick return motions and cone pulleys. The adaptation to the formation of gear teeth of the involute, the epicycloid, the logarithmic spiral, and other curves, form an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. In many cases they were constructed by the students from their own designs.

STRENGTH OF MATERIALS is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns and other structural pieces, tests are made of chains, ropes, cables, solid bars and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws, and strength of bricks, stones, marble, etc.

MACHINE DESIGN is taken up for one term, and the students make designs for screws, bolts, nuts, gears, and complete machines, such as arbor presses, drill presses, lathes, engines, etc. In this connection the students make use of classroom notes, reference books, and notes and sketches made by themselves from their experimental work and their reading.

BOILERS.—The various forms are carefully studied from the best authors.

The College possesses four steam boilers, to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples, obtained from different sources, of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings, and a large collection of parts of boilers showing conditions incident to boiler management.



Injectors, pumps, condensers, feed-water heaters and economizers receive special consideration and are thoroughly investigated.

Chimney draft and mechanical draft are studied and compared with regard to their relative efficiencies.

THE STEAM ENGINE is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests. Careful attention is given to the study of valves by means of the Zeuner diagrams. Compound and condensing engines are studied with reference to steam distribution and the proper proportion of the various parts. The thermodynamics of the steam engine is studied in the Senior year.

There are four steam engines at the College which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These, with what has already been named, form a desirable equipment for the use of the students.

Three of the steam engines are provided with Prony brakes. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was made for the Department, and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

MACHINERY AND MILL WORK receive attention, and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied. Important engineering developments, as they occur, are discussed in the classroom in connection with the studies to which they relate.

PUMPING MACHINERY.—A study of pumps of different styles and sizes.

STEAM ENGINE DESIGN.—It is the endeavor to have this work conform to the best modern practice, and to supplement the instruction given. Blue prints of drawings furnished by prominent manufacturers are used, and show the prevailing forms of engines in use.

GAS AND OIL ENGINES.—Theory and construction of gas and oil engines, ignitors, governors, etc.

COMPRESSED AIR MACHINERY.—The study of motors, compressors, hoists and various air tools.

TRANSMISSION OF POWER.—A study is made of the various forms of power transmission in shops and factories.

**THERMODYNAMICS.**—This includes a study of the laws of thermodynamics, the laws as applied to the steam engine.

**HEATING AND VENTILATION.**—This work includes the study and design of various forms of heating and ventilation in common use in modern buildings.

**RAILWAY MECHANICAL ENGINEERING.**—The design and construction of locomotives, the operation of the air brake and the study of different forms of signals and switches.

**SPECIFICATIONS AND CONTRACTS.**—Complete working drawings for some particular problem are made, the specifications are made, and a form of contract for such a problem is carefully worked out.

**CONSTRUCTIVE ENGINEERING.**—The design and arrangement of power plants, shops and factories.

**ELECTRICAL MACHINERY.**—This work embraces the study of various forms of electrical machinery, the adaptability for different purposes, the arrangement of power plants, light plants and the placing of motors for running single machines.

**METALLURGY.**—Under this head is taken up the study of combustion, fuels, furnaces and refractory materials. Especial attention is given to the metallurgy of iron and steel.

**SEMINAR.**—The Senior students in the Winter and Spring terms use one hour per week for the consideration of articles of interest appearing in the current technical papers and magazines.

**THESIS.**—Each student is assigned a subject which he is to investigate and upon which he must write a satisfactory thesis. He is expected to rely upon himself as much as possible.

**VISITS OF INSPECTION.**—During the Senior year the students make visits of inspection to the large industrial establishments of the State in charge of an instructor. These visits are intended to be of educational value, and to supplement the work done at the College, and to show the student the practical application of many things taught in the classroom.

Students are expected to read the current technical literature, and for their accommodation the College library is well supplied with the best engineering papers and magazines.

The shops in connection with the Mechanical Engineering Department are places where principles and operations may be more readily laid hold of and permanently acquired, than any bare demonstration of the classroom could accomplish.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

### COURSE OF LABOR.

|                             |          |
|-----------------------------|----------|
| Bench work in wood.....     | 13 weeks |
| Wood-turning .....          | 13 weeks |
| Pattern-making .....        | 13 weeks |
| Moulding and casting.....   | 13 weeks |
| Iron and steel forging..... | 13 weeks |
| Machine work in metals..... | 13 weeks |
| Vise work in metals.....    | 13 weeks |

**BENCH WORK IN WOOD.**—This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First, the use of planes in joining, smoothing and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle. Instruction is given in making glued joints, inlaid and scraped surfaces.

Students usually work from drawings. Cases, benches, boxes, foundry flasks and a variety of other useful articles are made.

**MACHINE WORK IN WOOD.**—In connection with this course, with the use of tools, is given the most rapid and economical method of selecting and preparing the wood for the machine. There are given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools, and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five-horse power vertical steam engine complete in all its details, a number of drafting tables, boring bars, gears, vises, bells and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.

**PATTERN-MAKING AND FOUNDRY WORK.**—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft and the best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There are given examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where moulds and cores are made and castings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the moulds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass and other metals and alloys are made for vises, drafting-tables, dynamos, steam engines, engine lathes and other things needed.

**FORGE WORK.**—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are put to a practical use. Lathe, planer and shaper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers and all bolts, braces and such other iron and steel work as may be needed.

**MACHINE WORK IN METAL.**—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals; centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work. Every shop exercise is graded and marked in the same manner as a classroom recitation, each piece of work being regarded as of educational value.

**PRACTICAL MECHANICS.**—For those whose time and means are limited, a short course in practical mechanics is provided. This course covers practically the work of the Freshman and Sophomore classes.



The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manufacture salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of how a tool or machine should be used, and the *manner of laying out work* for it, are thoroughly taught.

Should circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by his training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

**TOOL-ROOM SYSTEM.**—There is a well-arranged tool-room, fitted up with a check system designed to accustom students to order and neatness and the names of the tools in use.

**THEORY AND PRACTICE.**—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by, the most practical application of the same in all ways. In every instance where it is possible the work of the classroom is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.



# CIVIL AND IRRIGATION ENGINEERING.

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## FRESHMAN YEAR.

### FALL TERM.

|                           |   |                                       |
|---------------------------|---|---------------------------------------|
| College Algebra, 5.       | } | P. M.— $\frac{1}{2}$ Mechanical Draw- |
| Rhetoric, 5.              |   | ing.                                  |
| Carpentry and Joinery, 5. |   | $\frac{1}{2}$ Shop.                   |

### WINTER TERM.

|                        |   |             |
|------------------------|---|-------------|
| Trigonometry, 5.       | } | P. M.—Shop. |
| English Literature, 5. |   |             |
| Lettering, 2.          |   |             |
| Rhetoric, 3.           |   |             |

### SPRING TERM.

|                     |   |                                       |
|---------------------|---|---------------------------------------|
| Physics, 5.         | } | P. M.— $\frac{1}{2}$ Physical Labora- |
| Surveying, 5.       |   | tory.                                 |
| College Algebra, 5. |   | $\frac{1}{2}$ Surveying.              |

## SOPHOMORE YEAR.

### FALL TERM.

|                      |   |                  |
|----------------------|---|------------------|
| Field Camp, 2 weeks. | } | P. M.—Surveying. |
| Mechanics, 5.        |   |                  |
| Analytics, 5.        |   |                  |
| Higher Surveying, 5. |   |                  |
| Photography, 1.      |   |                  |

### WINTER TERM.

|                            |   |                   |
|----------------------------|---|-------------------|
| Differential Calculus, 5.  | } | P. M.—Draughting. |
| Mechanics, 5.              |   |                   |
| Irrigation Engineering, 5. |   |                   |

SPRING TERM.

|                          |   |                   |
|--------------------------|---|-------------------|
| Integral Calculus, 5.    | } | P. M.—Field Work. |
| Hydraulics, 5.           |   |                   |
| Railroad Engineering, 5. |   |                   |
| Seminar, 1.              |   |                   |

JUNIOR YEAR.

FALL TERM.

|                                     |   |                                                 |
|-------------------------------------|---|-------------------------------------------------|
| Field Camp, 2 weeks.                | } | P. M.—Chemical Laboratory, 3.<br>Field Work, 2. |
| Strength of Materials, 5.           |   |                                                 |
| Chemistry, 5.                       |   |                                                 |
| Irrigation Development and Laws, 5. |   |                                                 |
| Seminar, 1.                         |   |                                                 |

WINTER TERM.

|                                             |   |                            |
|---------------------------------------------|---|----------------------------|
| Chemistry, 5.                               | } | P. M.—Chemical Laboratory. |
| $\frac{1}{2}$ Materials, of Engineering, 5. |   |                            |
| $\frac{1}{2}$ Trusses and Bridges, 5.       |   |                            |
| $\frac{1}{2}$ Meteorology, 5.               |   |                            |
| $\frac{1}{2}$ Canal Management, 5.          |   |                            |
| Seminar, 1.                                 |   |                            |

SPRING TERM.

|                         |   |                   |
|-------------------------|---|-------------------|
| Hydraulics, 5.          | } | P. M.—Field Work. |
| Trusses and Bridges, 5. |   |                   |
| Geology, 5.             |   |                   |
| Seminar, 1.             |   |                   |

SENIOR YEAR.

FALL TERM.

|                      |   |                              |
|----------------------|---|------------------------------|
| Field Camp, 2 weeks. | } | P. M.—Electrical Laboratory. |
| Hydraulics, 5.       |   |                              |
| Logic, 3.            |   |                              |
| Electricity, 5.      |   |                              |
| Mineralogy, 2.       |   |                              |
| Seminar, 1.          |   |                              |

## WINTER TERM.

|                                  |   |               |
|----------------------------------|---|---------------|
| Civil Engineering, 5.            | } | P. M.—Design. |
| Engineering Design, 5.           |   |               |
| U. S. Constitution, 3.           |   |               |
| Specifications and Contracts, 2. |   |               |
| Seminar, 1.                      |   |               |

## SPRING TERM.

|                       |   |                    |
|-----------------------|---|--------------------|
| Thesis, 5.            | } | P. M.—Engineering. |
| Civil Engineering, 5. |   |                    |
| Political Economy, 4. |   |                    |
| Seminar, 1.           |   |                    |

This course is designed to give the students a good foundation, both theoretical and practical, in civil engineering.

As one of the opportunities for usefulness in Colorado and other Western states is along the lines of irrigation, special attention is paid to hydraulics and to the problems of irrigation.

The Colorado Agricultural College was the first to offer a course in irrigation engineering. The present course is designed to give its graduates the inclination and knowledge necessary to take an active part in irrigation engineering and management.

Especial stress is laid upon field work. Every student who completes the course is intended to have a working knowledge based on long and varied practice with all the ordinary instruments of surveying. In addition to the field practice through the college year, the whole class is taken into the mountains and the whole time given to field practice under actual conditions. In such exercises classes have run lines of levels and transit lines to the top of Long's Peak, an elevation of 14,275 feet. The members of the classes are required to check their work within limits of the most careful work.

The students are also exercised in the use of current meters in measuring water, gaging canals so that they may be prepared to settle some of the vexing problems connected with irrigation.

The College is well supplied with instruments, having six current meters, eight compasses, eight levels, eight transits, sextants, plane tables, barometers, planimeters, comptometers, odometers, with necessary chains, tapes, rods, etc., for field practice.

The department also has a camping outfit for use in the field.

**MATHEMATICS.**—In Mathematics the students, when entering the Freshman class, are expected to be prepared in geometry and in algebra to quadratics. Two additional terms are devoted to algebra, one

to trigonometry, with a view to practice in its application and in computations. Analytical geometry and differential calculus are completed in the Sophomore year, thus laying a foundation for the mechanics of materials, hydraulics, and other technical studies of the subsequent years.

**DRAWING.**—Orthographic projection, shades, shadows and lettering are taken up in the Freshman and Sophomore years. In connection with field work, designing plats, plans, and working drawing, giving considerable practice in draughting, are required.

**CHEMISTRY.**—Two terms in which chemistry, including general chemistry and elements of inorganic chemistry with laboratory work in blow pipe analysis and qualitative practice are required in the Junior year.

**PHYSICS.**—A preliminary high school course in physics is pre-supposed. This is continued by a term in Freshman year given to heat and electricity. Two terms in the Sophomore year are given to mechanics. Later in the course two terms which may be considered as a part of the study of physics are given to hydraulics, and a term in the Senior year is given to applications of electricity.

**SURVEYING.**—In the Freshman year land surveying and leveling, and the use of the compass and level as instruments of surveying are taught. The elements of city surveying, topographic, geodetic and hydrographic surveying with theory of instruments used are included in the study of higher surveying in the Senior year. Abundant field practice in the neighborhood surrounding the College which gives varied opportunities for field work.

**FIELD WORK.**—Six weeks are required in practice in the Freshman year. This is supplemented by much other required work of the Sophomore, Junior and Senior years. An important feature of the field work is the practice camp. This is begun one week prior to the opening of the Fall term, and extends through the first week of the Fall term, described more at length later.

**GEOLOGY.**—Stratigraphical geology and physiography is enforced by the abundant object lessons in the vicinity.

**MINERALOGY.**—This is confined more especially to the study of rocks as adapted to engineering construction.

**TRUSSES AND BRIDGES.**—The theoretical study of the distribution of stresses in bridges and the methods of calculating them, both numerically and graphically. Much time is given to the actual solution of problems. The study is aided by working drawings and examples of such structures.

**STRENGTH OF MATERIALS.**—The first term of this study is more especially given to the mechanics of materials, followed later by a study of the materials of engineering, as brick, stone, concrete, soil, etc., their peculiarities and advantages. The department has a testing machine of 50,000 pounds capacity, and also a cement testing machine of 1,000 pounds testing capacity, to use in laboratory practice.

**HYDRAULICS.**—The study of hydraulics from the theoretical side takes one term. This extends to the laws of gravity as affecting water, principles governing measurements through orifices, over weirs, channels, etc.; the loss of head through pipes, etc. Special stress is given to those operations which have application to the measurements and methods applicable in irrigation.

**AGRICULTURAL HYDRAULICS.**—In this course the relation of water to the growth of plants as a basis for intelligent irrigation, is considered. The amount of water used by plants; the most favorable amount of moisture in the soil, and the best depths of moisture, and other conditions favorable to plant growth. The methods and philosophy of irrigation are discussed at length. In another term subsequently, time is given to theoretical hydraulics and experimental investigation. In addition to the current meters, apparatus, and other equipment in this line belonging to the College, the canals and reservoirs on a large scale in the vicinity afford a means of measurement to an extent which no academic equipment could furnish. The College pipe line which brings water from a spring four miles distant, was equipped with piezometer connections at short intervals during construction so that it is an accessory to our hydraulic apparatus as a means of testing friction in pipes. We also have a siphon sixteen inches in diameter and 1,000 feet long and a pipe twelve inches in diameter several thousand feet in length also adapted for study of this character. The hydraulic laboratory also has an equipment of scales, weirs, etc., but the most valuable equipment for the work is found in connection with the neighboring canals. The hydraulic investigations of the corresponding section of the Experiment Station in the different parts of the State also furnish a large amount of data from actual investigation for the use of the more advanced students who are sometimes given opportunities to take part in these investigations.

**RAILROAD ENGINEERING.**—A term in the Sophomore year is given to the question of tunneling and earthwork, trestling, railroad location and the engineering problems of railroads.



**METEOROLOGY.**—A short course in which it is intended to give methods of observation of meteorological phenomena, a knowledge of the laws of storms, both general and local, and their changes, is taken up in the Winter term of the Junior year.

## IRRIGATION.

Besides the instruction in hydraulics, all of which is of practical import to the engineer or to the agriculturist in Colorado, several terms are devoted to the study of the various phases of the Irrigation question. In the Winter term of the Sophomore year the study of Irrigation Engineering is taken up. The construction of flumes, location and construction of canals, headgates and other structures are considered. In the Junior year a term is given to the consideration of the development of irrigation, and to the laws of irrigation. This is considered, but with the development of the idea that the present condition of irrigation institutions is an evolution from conditions of different communities, in that our laws have been made to meet the conditions as they have arisen.

**CANAL MANAGEMENT.**—In this course it is intended to discuss the problems that arise with canal superintendents and water commissioners whose duties lie in connection with the distribution of water, hence more especial attention is given to problems that concern such officials. Both of these courses are intended to give the student an intelligent knowledge of the problems of such duties as qualify technically for taking part in administration in the distribution of water, when acting as water commissioners or canal superintendents. In order to derive the greatest benefit, these two courses should be taken in connection with the study of hydraulics as included in the other courses.

In the course called Civil Engineering, in two terms of the Senior year, it is intended to include some of the other branches necessary for engineering not included in previous courses. A fuller discussion of road engineering and road making, of city engineering, including construction of city water works, and of other general problems of engineering, will be entered into in this course. In the Winter term of the Senior year considerable time is given to engineering design. It is intended in this course that practical problems of designing and laying out of canals and reservoirs, plans and estimates for flumes, headgates and other constructions shall be worked out. The problems given to students will vary from year to year. Other things

being equal, preference will be shown for those problems the solution of which will be of immediate benefit. The intention, however, is to require the students to design and make estimates complete for some particular engineering construction, whether water works, canals, or dams, with the belief that the complete solution of such problems will develop the power of the student to manage other similar problems.

The study of Specifications and Contracts in the Senior year will take up the essential principles of law involved in contracts. There will be discussions on the characteristics of written and implied contracts. The forms of contracts and the general conditions necessary for correct interpretation will also be considered.

The seminar of the last few years of the course will for a portion of the time include more than is ordinarily included in such terms. In the Sophomore and occasionally in the later years, some time will be given to technical literature. The articles in current periodicals will be read and reported upon by the different members of the class and a general discussion will ensue. As they become more advanced in their course more time will be given to discussions of various engineering questions and to the examination of different problems.

**PHOTOGRAPHY.**—The ability to use the camera is one of the essential elements in the knowledge of engineering, and a very desirable means of making a record of any kind of work. Each student will be given an opportunity to use the camera and will be given sufficient instruction to understand the principles of photography.

**FIELD CAMP.**—Each student in the Engineering course reports on Friday, ten days before the opening of the Fall term, for field practice. The benefits of such work have been so marked that this exercise is considered as an essential part of the course and is required of such students after the first year.

In order to remove distracting surroundings as well as to include excellent field opportunities, the classes go far into the mountains. The encampment lasts for two weeks and is in charge of the Professor of Engineering and competent assistants. For the past two years Estes Park and the vicinity of Long's Peak was selected as affording a variety of topographical conditions; from comparative plains to some of the roughest regions in the Rocky Mountains; with streams and abundant choice for both easy and difficult problems of field work. An additional reason for choice has been that notwithstanding the wildness of the country, the party has been within easy reach of daily mail, telephone, store and physician. Camps were formed at elevations of from 7,500 feet to 12,000 feet above sea level.

Level and transit lines were run to the top of Long's Peak at an elevation of 14,275 feet. While there has been hard work, such is to be expected and is welcomed by every earnest student, and the trips have also been the source of much pleasure. The students returned in vigorous physical condition, prepared for the remainder of the college year. The College supplies part of the permanent equipment. Each student furnishes his bedding and personal needs. The party unites in the expense of transportation, cook, provisions, and these are divided pro rata. The cost has not exceeded \$5.00 each per week, or about the same as would be the cost in town.

In the Senior year each student candidate for graduation will be expected to prepare a thesis containing the results of some original investigation on some question pertaining to Engineering or Irrigation.

## CHEMISTRY AND GEOLOGY.

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CHEMISTRY.—The prescribed course of study in this subject is taken by the students of all courses. It has been planned to include no more of the science than is advisable for a collegiate course, the object being to present the principles of the science and such facts as are necessary for a reasonably thorough understanding of these principles.

The means employed in giving instruction are recitations, lectures and laboratory practice. Our aim is to give the student the benefit of the discipline of the recitation system, the illustration of the lecture and the inductive system of the laboratory. The object aimed at is wholly educational and is included in an acquaintance with the scope and character of the science, the necessity of a clear perception of facts and an exact statement of the same; also the importance of neatness and exactness. The latter are obtained by requiring all experiments to be done quantitatively, first requiring the student to calculate the result which should be obtained, and testing his work by the agreement of the actual results with the calculated one.

Laboratory practice is not begun until the student has received sufficient instruction in stoichiometric calculation, and the general properties of acids, bases and salts, to make him to fully comprehend the simple problems given in illustration of the general principles of Chemistry.

The instruction during the first term covers the general principles of Chemistry and the Chemistry of the not-metals. The Chemistry of the metals is given by lectures. Organic Chemistry is taken up during the second term and the fatty compounds completed.

Agricultural Chemistry is taught by lectures and the text-book. Johnston's *Agricultural Chemistry*, edited by Professor Aikman, being used as a text. The lectures embrace, particularly, soil chemistry, manures and fodders.

The laboratory practice is the same for students of all courses up to the completion of the qualitative analysis; from this point on



the work is adapted to the objects the student has in view and to his proficiency. While the student's wishes are considered, the selection of the work is made by the professor in charge.

No instruction is given in assaying, as this line of work lies without our province and is provided for by other State institutions.

The laboratory is well lighted, heated and ventilated; it is supplied with all that is necessary for a very extended course in qualitative and quantitative analysis. For fuller description, see Buildings and Equipment.

**GEOLOGY.**—Two terms of the Junior year, the Winter and Spring, are devoted to this study. The relation of geology to the soil is more fully discussed in the Spring term of the Senior year in connection with Agricultural Chemistry. Elementary Geology is taken up in the Winter term of the Junior year and systematic Geology in the Spring term.

The illustrative material at our command is fuller than usual and of most excellent grade. Of lithological material, we have about nine hundred specimens of good cabinet size,  $3 \times 4\frac{1}{2}$  inches, representing all the important classes of rocks and many of the varieties. This collection of rocks is supplemented by a good working collection of the most important rock-forming minerals, and a small collection of sections serving to show the microscopic structure of the various classes of rocks and the optical properties of their component minerals. Economic Geology is represented by collections of ores, of which those of iron, lead and silver and copper are representative, and further by a large collection of ornamental materials, marbles, serpentines and porphyries. This collection consists of polished specimens. Many of them are large and all of them choice, making a very beautiful and attractive collection. Historical Geology is represented by a collection of seven hundred and fifty fossils and forty casts. These fossils illustrate the life of every geological age and period. Those of the Mesozoic and Cenozoic are, for the greater part, foreign, while those of the Paleozoic are mostly from American localities.



## GENERAL AND DOMESTIC SCIENCE.

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### FRESHMAN YEAR.

#### FALL TERM.

|                     |   |                                                         |
|---------------------|---|---------------------------------------------------------|
| College Algebra, 5. | } | P. M.— $\frac{1}{2}$ Pattern Drafting and Plain Sewing. |
| Rhetoric, 5.        |   | $\frac{1}{2}$ Canning and Preserving.                   |
|                     |   | German, 5.                                              |

#### WINTER TERM.

|                        |   |                                                |
|------------------------|---|------------------------------------------------|
| Trigonometry, 5.       | } | P. M.— $\frac{1}{2}$ Millinery and Embroidery. |
| English Literature, 5. |   |                                                |
| Rhetoric, 3.           |   | $\frac{1}{2}$ English Consultation.            |
| Themes, 2.             |   |                                                |

#### SPRING TERM.

|                                          |   |                                              |
|------------------------------------------|---|----------------------------------------------|
| Physics, 5.                              | } | P. M.— $\frac{1}{2}$ Drawing and Recitation. |
| German, 5.                               |   |                                              |
| Household Hygiene or College Algebra, 5. |   | $\frac{1}{2}$ Physical Laboratory.           |

### SOPHOMORE YEAR.

#### FALL TERM.

|                             |   |                                 |
|-----------------------------|---|---------------------------------|
| Mediæval Institutions, 2.   | } | P. M.—Zoological Laboratory, 2. |
| Heat, 3.                    |   |                                 |
| Zoology, 3.                 |   | Dressmaking, 3.                 |
| History of Architecture, 2. |   |                                 |
| Discussion or Analytics, 5. |   |                                 |

#### WINTER TERM.

|                           |   |                                 |
|---------------------------|---|---------------------------------|
| English History, 3.       | } | P. M.—Zoological Laboratory, 3. |
| Commercial Law, 5.        |   |                                 |
| Astronomy or Calculus, 5. |   | Library Science, 2.             |
| Zoology, 2.               |   |                                 |

# SPRING TERM.

|                               |   |                     |
|-------------------------------|---|---------------------|
| Dairying or Calculus, 5.      | } | P. M.—Histology, 2. |
| The Drama, 3.                 |   | Entomological Lab-  |
| Chemistry, 3.                 |   | oratory, 3.         |
| Entomology and Beekeeping, 4. |   |                     |

# JUNIOR YEAR.

## FALL TERM.

|                                                           |   |                                         |
|-----------------------------------------------------------|---|-----------------------------------------|
| $\frac{1}{2}$ Physiology, 5; $\frac{1}{2}$ Physiology, 3. | } | P. M.— $\frac{1}{2}$ Horticultural Lab- |
| $\frac{1}{2}$ Landscape Gardening, 2.                     |   | oratory.                                |
| Horticulture, 5.                                          |   | $\frac{1}{2}$ Chemical Lab-             |
| Chemistry, 5.                                             |   | oratory.                                |

## WINTER TERM.

|                                        |   |                        |
|----------------------------------------|---|------------------------|
| $\frac{1}{2}$ Floriculture, 5.         | } | P. M.—Chemical Labora- |
| $\frac{1}{2}$ Chemistry of Cooking, 5. |   |                        |
| Sociology, 3.                          |   |                        |
| Pattern Drafting, 2.                   |   |                        |
| Chemistry, 5.                          |   |                        |

## SPRING TERM.

|                    |   |                                       |
|--------------------|---|---------------------------------------|
| Home Nursing, 4.   | } | P. M.— $\frac{1}{2}$ Art Needle Work. |
| Geology, 5.        |   | $\frac{1}{2}$ Library.                |
| Psychology, 3.     |   |                                       |
| Recent History, 3. |   |                                       |

# SENIOR YEAR.

## FALL TERM.

|                               |   |               |
|-------------------------------|---|---------------|
| Bacteriology, 3.              | } | P. M.—Sewing. |
| Logic, 3.                     |   |               |
| Literature, 2.                |   |               |
| Philosophy of Home Making, 4. |   |               |
| Philosophy of History, 3.     |   |               |
| Thesis.                       |   |               |

## WINTER TERM.

|                                       |                                                         |
|---------------------------------------|---------------------------------------------------------|
| Constitution of the United States, 3. | } P. M.—Embroyological<br>Laboratory, 3.<br>Cooking, 2. |
| Embryology, 3.                        |                                                         |
| Philosophy of History, 2.             |                                                         |
| Evolution, 3.                         |                                                         |
| Science of Nutrition, 4.              |                                                         |
| Thesis.                               |                                                         |

## SPRING TERM.

|                        |                                  |
|------------------------|----------------------------------|
| ½ Fiction, 5.          | } P. M.—Advanced Needle<br>Work. |
| ½ Special Lectures, 5. |                                  |
| Recent History, 3.     |                                  |
| Ethics, 3.             |                                  |
| Political Economy, 4.  |                                  |
| Thesis.                |                                  |

The establishment of the Department of Domestic Science in the Colorado Agricultural College was the outgrowth of the conviction that the education of a young woman is no more complete without training in the domestic arts and underlying sciences than is the education of a young man without training in the practical arts of life.

Knowledge is an excellent thing; but knowledge and the acquired skill to apply that knowledge are infinitely better. To know what to do is important; to know the same thing, and in addition to have skill in doing it, is reaching out and taking hold of the best.

Thus committed to the doctrine that true education should include, and in fact does include, culture of the moral and mental powers in connection with the practical training in the industrial arts, the State Board of Agriculture illustrated its theory in the founding of this Department in June, 1894.

The following fall witnessed the opening of the old Horticultural building under a new name with a purpose of making this feature a great success.

The appreciation of this work is manifest in the fact that since its introduction the number of young ladies in the College has more than doubled. Since the majority of young ladies will be home-makers, this subject is of paramount importance. Through this training that which seemed drudgery is transformed into an attractive, elevating and very useful art.

The course includes lectures and classroom recitations, found in the following subjects:

I. HYGIENE AND SANITATION.—This subject is taken up at the beginning of the Spring term of the Freshman year. The text-book used is a collection of *Public Health* essays relating chiefly to the home and school, and are classified in this way:

1. Study of the Home.

(a) Selection of Location.

(b) The building of the home, from foundation to attic, including materials used, the plumbing, heating, lighting, ventilation, etc.

(c) The surroundings: lawns, trees and shrubbery; emphasizing sanitary and hygienic conditions.

(d) Furnishing the home for the purposes of convenience, adornment and the happiness of the inmates.

2. The use of Disinfectants.

3. Individual Prophylaxis Against Disease.

4. School Hygiene.

5. Foods.

6. Preventable Causes of Disease.

II. EMERGENCIES, CONVERSATION, ETC.—During the Fall term of the Sophomore year the leading aim is to teach self-reliance, presence of mind, an interest in general subjects, and to train the student to express herself concisely, intelligently and entertainingly.

The scheme is varied for each day in the week. Tuesdays are devoted to emergencies. To illustrate: One subject taken is the resuscitation of the apparently drowned. While all cases of accident a physician should be called, the attendant may be of great use while the physician is coming. On Wednesdays the subjects always relate to the human organism. For instance, the skin is studied under the divisions of functions and care. Thursday each young woman is required to prepare for the class an item of interest that belongs to the general subject of Home Science. The lesson for Friday morning is one of great importance. Some subject for discussion is announced one week in advance, with a member of the class as leader. For twenty minutes the one in charge presides; then the instructor takes the chair and recapitulates, adding and modifying wherever necessary.

Since the art of conversation has been very much neglected in recent years, the young women appreciate this opportunity of giving special attention to so valuable and cultivating a subject, par-

ticularly since it is absolutely indispensable in the well-ordered home.

III. CHEMISTRY OF COOKING AND CLEANING.—In the Winter term of the Junior year the subject considered is the Chemistry of Cooking and Cleaning. The practice of cooking can not be carried on successfully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The work of this term tends to lift the veil of mystery from many kinds of housework, and to fill the mind of the student with a broader conception of her sphere as a homemaker. Moreover, the actual performance of the labor is materially lessened when these subjects are properly understood.

IV. HOME NURSING.—At the opening of the Spring term, Junior year, Week's Text-Book on Nursing is placed in the hands of the class, and as thorough investigations and study as possible without clinical practice is carried forward. In all of these lines attention is given to the subject of micro-organisms, as the knowledge of them and their functions is variously related to the matters under consideration.

V. THE PHILOSOPHY OF HOME MAKING.—This study has been added to the course this year and is designed to treat the whole province of the home from a philosophical standpoint. Fall term, Senior year.

VI. SCIENCE OF NUTRITION.—During the Winter term of the Senior year the Science of Nutrition is studied with Atwater's *Chemistry and Economy of Food*. Bulletin No. 21, of the Office of Experiment Stations, Washington, D. C., is taken as the basis. Much supplementary reading is required, and the study of dietaries is made an important feature of this division.

VII. STUDIES IN HYGIENIC AND ARTISTIC PATTERN DRAFTING.—The human form is to be studied with health, beauty and utility in view, in the making of patterns and clothing. Winter term, Junior year.

VIII. LECTURES.—These are given by specialists and are of great importance to young women in organizing and conducting their own homes. Spring term, Senior year.

SEWING.—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery and millinery. Everything is done systematically and methodically, and not for a moment is sight lost of the high educational value of this training. Special instruction is given in dress-



making. Notwithstanding the fact that no student is required to purchase material for sewing, it is invariably done, because in so doing she is entitled to the product of her labor.

**THE KITCHEN.**—The work in the kitchen laboratory includes the study of foods, with practice in all kinds of cooking and laundering. How to serve food; the care of the table linen; the arrangement of dining tables for all occasions, and how to make all kinds of food serve their best purpose at the least cost, are among the subjects considered.

**HOUSEKEEPING.**—Since the building in which Domestic Science is taught is furnished, as far as possible, as a home would be, actual work in housekeeping is carried on. Sweeping, washing of wood and glass, as well as dusting, form a part of each student's duties.

**GENERAL TOPICS.**—A lecture is given on each Monday afternoon on some topic relating to the care of the house, clothing, or person; social duties; customs, customs of good society and anything that will aid in the development of a perfect womanhood.

**THESIS.**—The subject for thesis must be chosen after consultation with the head of the department selected by the student for thesis work, not later than October 15, of the Senior year. The thesis must record the result of original investigation of some subject, and must be approved by the head of the department directing such work, and filed with the Secretary of the Faculty not later than May 15, of the Senior year.

## VETERINARY SCIENCE.

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### FRESHMAN YEAR.

#### FALL TERM.

|                           |   |                               |
|---------------------------|---|-------------------------------|
| College Algebra, 5.       | } | P. M.— $\frac{1}{2}$ Drawing. |
| Rhetoric, 5.              |   | $\frac{1}{2}$ Shop.           |
| Carpentry and Joinery, 5. |   |                               |

#### WINTER TERM.

|                        |   |             |
|------------------------|---|-------------|
| Trigonometry, 5.       | } | P. M.—Shop. |
| English Literature, 5. |   |             |
| Rhetoric, 3.           |   |             |
| Themes, 2.             |   |             |

#### SPRING TERM.

|               |   |                                      |
|---------------|---|--------------------------------------|
| Physics, 5.   | } | P. M.— $\frac{1}{2}$ Physical Labor- |
| Surveying, 5. |   | atory.                               |
| German, 5.    |   | $\frac{1}{2}$ Surveying.             |

### SOPHOMORE YEAR.

#### FALL TERM.

|                         |   |                          |
|-------------------------|---|--------------------------|
| Mechanics, 5.           | } | P. M.—Zoological Labora- |
| Dairying, 5.            |   | tory, 2.                 |
| Zoology, 3.             |   | Dairying Labora-         |
| Veterinary Elements, 2. |   | tory, 3.                 |

#### WINTER TERM.

|                         |   |                          |
|-------------------------|---|--------------------------|
| Theory and Practice, 5. | } | P. M.—Zoological Labora- |
| Zoology, 2.             |   | tory, 3.                 |
| Stock-Breeding, 5.      |   | Clinics, 2.              |
| English History, 3.     |   |                          |

SPRING TERM.

|                                   |   |                            |
|-----------------------------------|---|----------------------------|
| Chemistry, 3.                     | } | P. M.—Dissection and Clin- |
| Farm Buildings, 5.                |   |                            |
| Theory and Practice of Veterinary |   |                            |
| Medicine, 5.                      |   |                            |
|                                   |   | ics, 3.                    |
|                                   |   | Histology, 2.              |

JUNIOR YEAR.

FALL TERM.

|                      |   |                   |
|----------------------|---|-------------------|
| ½ Materia Medica, 2. | } | P. M.—½ Clinics.  |
| Chemistry, 5.        |   |                   |
| ½ Physiology, 5.     |   |                   |
| ½ Physiology, 3.     |   |                   |
| Anatomy, 5.          |   |                   |
|                      |   | ½ Chemical Labor- |
|                      |   | atory.            |

WINTER TERM.

|                    |   |                          |
|--------------------|---|--------------------------|
| Anatomy, 5.        | } | P. M.—Physiological Bot- |
| Chemistry, 5.      |   |                          |
| Materia Medica, 5. |   |                          |
|                    |   |                          |
|                    |   | any, 3.                  |
|                    |   | Chemical Labora-         |
|                    |   | tory, 2.                 |

SPRING TERM.

|                                       |   |                            |
|---------------------------------------|---|----------------------------|
| Comparative Anatomy, 2.               | } | P. M.—Dissection and Clin- |
| Operative Surgery, 3.                 |   |                            |
| Animal Parasites, 1.                  |   |                            |
| Materia Medica, 5.                    |   |                            |
| Principles and Practice of Veterinary |   |                            |
| Medicine, 4.                          |   |                            |
|                                       |   | ics.                       |

SENIOR YEAR.

FALL TERM.

|                                       |   |                            |
|---------------------------------------|---|----------------------------|
| General Pathology, 3.                 | } | P. M.—Dissection and Clin- |
| Bacteriology, 3.                      |   |                            |
| Chemistry, 5.                         |   |                            |
| Principles and Practice of Veterinary |   |                            |
| Medicine, 4.                          |   |                            |
|                                       |   | ics.                       |

## WINTER TERM.

Evolution of Animals, 3.  
Special Pathology, 5.  
Therapeutics, 3.  
Materia Medica, 2.  
Embryology, 3.

} P. M.—Clinics, 2.  
Embryological Laboratory, 3.

## SPRING TERM.

Political Economy, 4.  
Operative Surgery, 5.  
Therapeutics, 4.  
Obstetrics, 2.

} P. M.—Dissection and Clinics.

Veterinary Science has within the last decade assumed a wide and important sphere of usefulness, while formerly it implied simply the treatment of domesticated animals for the common accidents and ailments, for reasons wholly pecuniary or humanitarian, and incidentally furnished the most unhampered opportunity for the exercise of superstition and the practice of charlatanism. Now it has come to be recognized as a true science, with importance second to none, as it deals more directly with contagious diseases and their relation to the public health.

The assumption of this new role is coeval with, and the inevitable consequence of, the advent of the germ theory of disease. Micro-organisms which are responsible for our many ills, must be studied in the lower animals as well as in man, for here we find them in the greatest variety and virulency.

It cannot be denied that prophylaxy belongs to the broad field of comparative medicine, and that its two branches, human and veterinary, are inseparable. This bond of inseparable usefulness in the protection of the public health has been sealed by the anti-toxin principle of serum therapy. The immunizing of animals against fatal contagious diseases; the certain detection of latent diseases which cannot be known by physical symptoms, and their early isolation or destruction before they have spread disease germs among their kind, or as in many cases to the human. Also the cure of some diseases and the immense possibilities yet in store by the administration of repeated doses of the attenuated virus; the prevention of disease, which has long been in vogue to a limited extent, by their early administration are phases of the role of Veterinary Science of today, and afford us a brief glimpse of its possibilities.

Livestock being one of the principal industries of this State, it is the purpose of Veterinary Science in this institution to not only give a most thorough course of instruction but to stand for everything that can advance this ever-increasing and important industry. More specifically its province lies in the direction of the handling and treatment of livestock from the standpoints of disease, prophylaxy and treatment.

The curriculum is so arranged that students from the other courses can elect Veterinary Science at the beginning of the Junior year, and those of the course in Agriculture can elect it in part during the Senior year.

**DISSECTIONS AND CLINICS.**—The well-equipped dissecting rooms, and the free clinics afternoons of every term after the Freshman year, furnish abundant material for practical work. This work is under the immediate supervision of Dr. Glover. The College being situated in an extensive stock-growing district is especially favored in this respect. Not only horses, but all species of animals are brought in for treatment.

Besides this the College herd, which every season is finding greatly improved and enlarged, is one of the finest in America, and of itself furnishes ample material for classroom demonstration, and requires the constant attention of the Veterinarian.

**OPERATIVE SURGERY.**—It is in this line of surgery that the Veterinarian has more to do than in any other.

Operations of every description are performed for the benefit of the class at the hours of free clinics throughout the entire course. The more advanced students are required to perform ordinary operations such as would be found necessary in Veterinary practice.

The subject is also taught by text-book in the Senior year.

**GENERAL AND SPECIAL PATHOLOGY.**—This work is taken up during the Senior year, after a thorough course in Physiology and Histology. The subject is taught by text-book, supplemented by lectures. First the elementary morbid processes generally, macroscopic and microscopic inflammation and its accompanying phenomena, infiltration, resolution, thrombosis, embolism degeneration, atrophy, hypertrophy, necrosis, gangrene, hyperæmia, hemorrhage, tumor formations, etc.

Later the study of special pathology is taken into consideration, that is, the diseases peculiar to particular tissues or organs.

**MATERIA MEDICA.**—This is taught throughout the Junior year and in the first term of the Senior by text-book (Finlay Dunn) with



samples of the drugs exhibited to the students, who are required to inspect and handle them until they become intimately acquainted with the leading properties of all the principal drugs.

OBSTETRICS.—This subject is taken up during the last term of the Senior year, and is taught by two lectures a week. Fleming's *Obstetrics* is used for reference. It includes a review of the reproductive organs, gestation, dystocia, accidents during parturition, obstetric operations, hygiene of pregnant animals, etc.

ANATOMY OF THE DOMESTICATED ANIMALS.—This subject is treated throughout the Junior year by text-books (Chauveau) and supplemented by demonstrations from mounted skeletons, prepared specimens, charts and dissections. During the last term of the Junior year special work in comparative anatomy is given under the direction of Prof. C. P. Gillette.

THERAPEUTICS.—This subject is taught by text-book during the Senior year. It embraces in the case of each particular drug pharmacy, physiological action, therapeutical action, toxic action, antidotes, administration, dosage, antagonists, and incompatibles.

This course is supplemented by prescription writing, which is begun earlier in the course in the study of *Materia Medica*.

# ARCHITECTURE.

## FRESHMAN YEAR.

### FALL TERM.

|                             |   |                  |         |
|-----------------------------|---|------------------|---------|
| College Algebra, 5.         | } | P. M.—Elementary | Design, |
| Rhetoric, 5.                |   | 3.               |         |
| History of Architecture, 2. |   | Construction     | Draw-   |
| Construction, 3.            |   | ing,             | 2.      |

### WINTER TERM.

|                  |   |                    |       |
|------------------|---|--------------------|-------|
| Trigonometry, 5. | } | P. M.—Construction | Draw- |
| Construction, 5. |   | ing,               | 5.    |
| Rhetoric, 3.     |   |                    |       |
| Drawing, 2.      |   |                    |       |

### SPRING TERM.

|                     |   |                                       |  |
|---------------------|---|---------------------------------------|--|
| Physics, 5.         | } | P. M.— $\frac{1}{2}$ Physical Labora- |  |
| Surveying, 5.       |   | tory.                                 |  |
| College Algebra, 5. |   | $\frac{1}{2}$ Surveying.              |  |

## SOPHOMORE YEAR.

### FALL TERM.

|                             |   |                           |  |
|-----------------------------|---|---------------------------|--|
| Mechanics, 5.               | } | P. M.—Orders of Architec- |  |
| Analytics, 5.               |   | ture.                     |  |
| History of Architecture, 2. |   |                           |  |
| Descriptive Geometry, 3.    |   |                           |  |

### WINTER TERM.

|                             |   |                           |  |
|-----------------------------|---|---------------------------|--|
| Differential Calculus, 5.   | } | P. M.—Orders of Architec- |  |
| Perspective, 4.             |   | ture.                     |  |
| History of Architecture, 3. |   | Renaissance Design.       |  |
| Descriptive Geometry, 3.    |   |                           |  |

## SPRING TERM.

|                                           |   |                                        |
|-------------------------------------------|---|----------------------------------------|
| Integral Calculus, 5.                     | } | P. M.—Romanesque and<br>Gothic Design. |
| Planning and Requirements of Building, 5. |   |                                        |
| Architectural Composition, 3.             |   |                                        |
| Perspective, 2.                           |   |                                        |

## JUNIOR YEAR.

## FALL TERM.

|                                       |   |                               |
|---------------------------------------|---|-------------------------------|
| Chemistry, 5.                         | } | P. M.—Chemical Laboratory, 3. |
| $\frac{1}{2}$ Landscape Gardening, 2. |   |                               |
| Strength of Materials, 5.             |   |                               |
| Residence Construction, 3.            |   |                               |

## WINTER TERM.

|                                            |   |                            |
|--------------------------------------------|---|----------------------------|
| Chemistry, 5.                              | } | P. M.—Chemical Laboratory. |
| $\frac{1}{2}$ Trusses and Bridges, 5.      |   |                            |
| $\frac{1}{2}$ Materials of Engineering, 5. |   |                            |
| Estimating, 2.                             |   |                            |

## SPRING TERM.

|                                  |   |                  |
|----------------------------------|---|------------------|
| Specifications and Contracts, 3. | } | P. M.—Design, 5. |
| Trusses and Bridges, 5.          |   |                  |
| Geology, 5.                      |   |                  |
| Superintendence, 2.              |   |                  |

## SENIOR YEAR.

## FALL TERM.

|                              |   |                        |
|------------------------------|---|------------------------|
| Composition of Ornaments, 7. | } | P. M.—Advanced Design. |
| Electricity, 5.              |   |                        |
| Thesis, 2.                   |   |                        |
| Seminar, 1.                  |   |                        |

## WINTER TERM.

|                               |   |                                 |
|-------------------------------|---|---------------------------------|
| Sanitary Construction, 2.     | } | P. M.—Thesis, 3.<br>Drawing, 2. |
| Heating and Ventilation, 3.   |   |                                 |
| Pen and Ink Drawing, 5.       |   |                                 |
| Architectural Engineering, 5. |   |                                 |

## SPRING TERM.

Political Economy, 4.  
Working Drawings, 6.

} P. M.—Thesis.

It is so clearly under the provision of all the acts, Federal and State, relating to Agricultural and Mechanical Colleges, to provide the youth of the land with such theoretical and technical education as shall make them educated and skilled workmen of high order, that the State Board of Agriculture has decided to introduce the foregoing course in Architecture.

The immediate future of Colorado will lay great demands upon young men skilled in making plans for, and superintending the building of artistic and convenient homes and permanent public and business buildings.

The aim of this course is to secure to its graduates an ample preparation for the demands of the best professional practice. To that end, its course of study combines thorough professional training with the essentials of a liberal education, being so framed that the student may acquire thorough skill in draughtsmanship, combined with a critical taste and creative resource in design and sound judgment in construction.

To accomplish these results, the course is so arranged as to present architecture as an art, which, while inseparable from sound construction and obedience to utility, yet lies above and beyond these attributes in the field of the Fine Arts proper. The most important division of the professional work pertains, therefore, to design; and to this subject, in its various phases, the relatively largest portion of the student's time is devoted throughout the course. Careful attention is given to subjects comprehended under the term "Architectural Engineering," comprising pure and applied science, the nature of materials and the theory and practice of construction and of sanitation. Draughtsmanship receives constant attention throughout the course, not only in drawing incident to the Design Courses, but also in various lines of instruction in pure drawing.

The purely professional work of the course thus outlined covers some three-fourths of the time required of the student; the remaining portion being devoted to strictly liberal studies.

The study of Architecture, as here presented, while essential to a proper architectural training, has also strong claims of value as a means of liberal culture, if, together with the purely collegiate

branches, consideration be given to that basic element in the professional curriculum which pertains especially to the art of Architecture.

Architectural Engineering, while not a distinct course, is presented in its essential elements.

Drawing in its numerous forms is esteemed as a means of cultivating the perspective faculties, but its great value lies in its peculiar effect in the development of taste, imagination and the faculty of expression, so vital a necessity in creative work.

The work, at the beginning, may be considered as contributing to this end, although its exercises are given a somewhat formal character, but later charcoal drawing from the cast of ornament introduces the work in pure drawing, expanding into "antique" and "life," while much time is given to instruction in water color (in still life, nature and architectural perspective), and pen and ink rendering. Associated with this work and related no less to that in architectural drawing and in pure science, are the courses in Perspective and Shades and Shadows.

Supplemental to this course, a series of lectures will be given before the classes by prominent architects and members of the Colorado Chapter of The American Institute of Architects, upon the various phases of professional work.



## MATHEMATICS.

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GENERAL STATEMENT.—The course in Mathematics is full and complete. The different subjects are taken up in logical order as rapidly as the student has fitted himself for them. The courses offered are the following:

First Sub-Freshman—Elementary Algebra, three terms.

Second Sub-Freshman—Plane and Solid Geometry, three terms.

Freshman—College Algebra, two terms.

Plane Trigonometry, one term.

Sophomore—Analytical Geometry, one term.

Differential Calculus, one term.

Integral Calculus, one term.

Descriptive Geometry, two terms.

ALGEBRA.—This subject is pursued during the first Sub-Freshman and Freshman years. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of arithmetic by the notation of two sorts of quantities directly opposite in character, and the conciseness obtained by the use of literal notation. He is taught the fundamental operations of addition, subtraction, multiplication and division and also the methods of solving simple equations containing one unknown quantity. Subsequent work during the next two terms acquaints him with factoring, common factors and multiples, fractions, fractional equations, simple simultaneous equations containing two and three unknown quantities; involution, evolution, theory of exponents, radicals and imaginary expressions. The text-book used is "White's School Algebra," and the work in the first Sub-Freshman year extends to quadratic equations. This subject is continued in the Freshman year.

GEOMETRY.—This subject is taken up at the beginning of the second Sub-Freshman year, and in the three terms given to this study the student is given a thorough and practical acquaintance with the construction of geometrical figures. He also takes up formal proof and is led to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience. He is also given thorough practice in the mensuration of geo-

metric magnitudes. So far as time and ability of the student will permit, he has practice upon original exercises. The year's work covers the whole of Wentworth's "Plane and Solid Geometry."

COLLEGE ALGEBRA.—For two terms in the Freshman year the student deals with the principles of advanced algebra. The text-book used is Wentworth's "College Algebra." The work begins with quadratic equations, and during the first term the student is expected to cover the entire subjects of quadratics, ratio and proportion, variation, progressions, the binomial theorem, and logarithms. During the second term the following subjects are taken up in order: Variables and limits, series, general properties of equations, derivatives, transformation and solution of equations of the third and higher degrees (involving "Horner's Method" and "Sturm's Theorem"), and what time remains is given to choice, chance, and the graphical representation of functions, thus opening the way for Analytical Geometry.

TRIGONOMETRY.—This subject is taken up in the Freshman year and during a term's work in it the student is made familiar with "Plane Trigonometry." He is given clear ideas of the trigonometrical concepts, shown their relation and given considerable practice in the practical application of this branch of mathematics.

At this point all students in the Agricultural, General and Domestic Science courses discontinue their mathematical studies. From the wide application of mathematics to all branches of engineering, those students electing any one of the courses in engineering continue their mathematical studies throughout the entire Sophomore year.

ANALYTICAL GEOMETRY.—This subject is taught during the first term of the Sophomore year. Wentworth's "Analytics" is the text used, and the student is made acquainted with the method of co-ordinates and the connection between algebraic and geometric forms. The fundamental properties of conic sections, loci of the second order, and higher plane curves are developed and as much more of the subject as time permits.

CALCULUS.—The Winter and Spring terms of the Sophomore year are devoted to the study of the Differential and Integral Calculus. Taylor's "Differential and Integral Calculus" is the text-book used, and the subject is pursued as there given. The notation of limits is, however, made the logical basis upon which the subject is developed.

DESCRIPTIVE GEOMETRY.—This subject is taught to the students of the engineering course for two terms during their Sophomore

year. The principles of projection, intersection, development, etc., are discussed and illustrated by a great variety of problems, all of which are accurately worked out on the draughting-board by each student.

The department is provided with a set of Schroeder models from Darmstadt, and with models of warped surfaces, etc., for the purpose of illustration in the study of geometry. There is also a set of drawings for the use and study of curves and curve tracing.

The purpose of instruction in this department is two-fold: first, to give the student clear and exact ideas of magnitude and their measurements; and second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

## HISTORY AND LITERATURE.

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### HISTORY.

The purpose of the work in history is (1) to give that information concerning the past which the intelligent citizen requires; (2) to aid the student in acquiring a scientific method of investigation and consideration of historical data; (3) to awaken an interest in the great field of history and biography which the library affords.

The following courses in History are offered:

**COURSE I. *General History.***—This course is offered during the Fall and Winter terms of the first Sub-Freshman year. The student is expected to have had thorough preparatory work in the study of History of the United States. The object of the course will be an acquaintance with the great epochs of history, with special attention to the part taken by Greece and Rome in the advancement of human progress. A text-book will be used, supplemented by library references, classroom lectures and the stereopticon whenever desirable.

**COURSE II. *Mediaeval Europe.***—A critical study of the movements and institutions which characterized the middle ages, the renaissance and reformation periods, and the rise of modern nations, is given in the Fall term of the Sophomore year. Extracts from the original sources in connection with suggestive studies are used, and the student will be encouraged to form his own opinions and to produce proofs to support his judgments as to the influence of this period in the world's civilization. The reference library, lectures, the stereopticon and historical composition by the students, will be features of this course.

**COURSE III. *English History.***—This course follows second in the Winter term of the Sophomore year. The influence of English history upon American institutions makes this study one of particular interest, and very valuable as preparation for work in English Literature, Constitutional History and Political Economy. A text-book will supply an outline for the course, and collateral readings from the leading authorities will be furnished by the library.

COURSE IV. *Recent History of Europe*.—This course during the Spring term of the Junior year alternates with the course in Recent History of the United States given in the corresponding term of the Senior year, in order that the classes may recite together. McCarthy's *History of Our Own Times* is used as a guide, supplemented by library investigation of special topics.

COURSE V. *Recent History of the United States*.—During the Spring term of the Senior year the thorough study of some important epoch in the development of the United States will be pursued. This work will alternate with the Recent History of Europe required in the Junior year, the Junior and Senior classes reciting together. Questions for class discussion and debate will be announced from time to time, and written papers prepared by students as the result of special investigation will be features of the course.

COURSE VI. *Philosophy of History*.—This course, offered during the Fall and Winter terms of the Senior year, includes study and practice in historical investigations; the laws governing human actions; reciprocal influences of religion, literature and government; comparisons and criticisms of past civilizations and their relation to modern progress.

## LITERATURE.

It is the object of this study to lead students by direct contact with the literary masterpieces to understand the art in literature, and to develop their power of appreciating the strength and beauty of English writings.

COURSE I. *American Literature*.—The Spring term of the first Sub-Freshman year is devoted to this course, the purpose being to develop intelligent appreciation of American masterpieces and to promote a love for our standard literature. Several American classics will be made the subject of critical classroom study.

COURSE II. *English Literature*.—In the Winter term of the Freshman year a brief historical outline of the periods of English Literature is supplemented by study of the works of representative authors. Masterpieces from Chaucer, Spenser, Bacon, Shakespeare and later writers form the basis for the term's work.

COURSE III. *The Drama*.—The Spring term of the Sophomore year will be devoted to Shakespeare and the drama. Lectures will be given on the principles of dramatic art, with particular attention to character study, plot development, and the contrasts between an-



cient classic and modern romantic drama. Several of Shakespeare's plays will be studied in class. Frequent themes will be required on topics suggested by the reading.

COURSE IV. *English Literature*.—The growth and development of literary art during the Seventeenth and Eighteenth centuries will form the basis for work during the Fall term of the Senior year. The work will consist of the study of several masterpieces from Milton to Tennyson, with written exercises on subjects suggested by the readings.

COURSE V. *Fiction*.—During the Spring term of the Senior year a short course in prose fiction is offered. The history of the growth of the novel; its place in literature; use and abuse of fiction; fiction as a laboratory for character study, etc., will furnish subjects for the lectures of the course. Illustrative readings will be required.

COURSE VI. *Library Reading*.—The College Library is the laboratory of this department, and four hours per week of library reading is expected of each student in connection with all courses in History and Literature. During the Sub-Freshman course in history the system of library classification is explained, and the student is made familiar with the use and location of the valuable works of reference with which our library is supplied.

APPARATUS.—By means of the stereopticon and a fine collection of views, many scenes of historic and literary interest are brought into the classroom. A valuable collection of foreign photographs also belongs to this department, by which the art and architecture of the past and present are illustrated.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illustrate ten periods of European history since the Christian era, and also include seven maps for the study of ancient history and excellent maps for United States History.

## RHETORIC AND PHILOSOPHY.

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### RHETORIC.

The aim of the following course in Rhetoric and English Composition is, in general, twofold: (1) To train the student in the theory and the practice of English Composition; and (2) by the study of the fundamental principles of style, to aid him in an intelligent appreciation of literature.

COURSE I. *Elementary Rhetoric and Composition*.—This course extends daily throughout the first Sub-Freshman year. The classroom work is divided equally between theory and practice. Scott and Denney's *Elementary English Composition* and Webster's *Academic Dictionary* are the required text-books. Composition work carefully encouraged, exercises along some written work almost daily. Students are drilled to correct their own mistakes. Before entering upon this course, or upon any later course, students must prove their unquestioned acquaintance with technical English Grammar.

COURSE II. *Rhetoric and Rhetorical Analysis*.—This course follows the *Elementary Rhetoric and Composition* of the Sub-Freshman class, which is a prerequisite. Devoted mainly to the study of essay structure and the fundamental principles of the different forms of discourse. Analysis of good prose models. The course is given daily throughout the Fall and Winter terms of the Freshman year.

### PHILOSOPHY.

COURSE I. *Psychology*.—A course of elements and outlines of Psychology is given the Spring term of the Junior year, and it aims to familiarize the student with first psychological principles. Dexter and Garlick's *Psychology in the Schoolroom* is used as a text-book. The course is supplemented by lectures and simple laboratory work. Three hours.

COURSE II. *Logic*.—This course is elementary, and is given the Fall term of the Senior year. It is presented through recitations, discussions and many original exercises. The syllogism is especially

and minutely worked out. A number of scientific and philosophical arguments, as well as characteristic judgments of immediate perception are studied. The aim is to bring out in a clear and practical manner both the inductive and the deductive sides of inference, and to point out some of the principles of philosophy that are involved in them. The text-book for 1902-1903 is Creighton's *Introductory Logic*. Three hours.

COURSE III. *Ethics*.—This course is given the Spring term of the Senior year. The work in Ethics bases itself upon the psychological ideas acquired in the previous courses, and applies them to the analysis of character, habit, desires and ideals from an ethical point of view. Mackenzie's *Manual of Ethics* (third edition) is followed pretty closely as a text-book, supplemented by such work as may be suggested by library work. Three hours.

## SOCIOLOGY AND THE CONSTITUTION.

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The student needs to understand the Constitution of the United States and to yield to its democratic philosophy before he can become a worthy citizen of the nation; but he needs also to come into touch with all human conditions in all the world before he can truly become a worthy man. This is best achieved in the general science of Sociology and its special branch, Political Economy.

The great problems of state and of trade run back after all for their solution, into the deeper human relationships. To be sure, both teacher and student must constantly bear in mind that these relationships have an ideal perfection, and that the approach to them is evolutionary.

But there is no greater inspiration than to feel that the race is "fated to grow" toward liberty and unity, and that each generation more easily sights the goal than the preceding one.

The modern school of the science of government and sociology is neither radical nor conservative. It simply studies the human unfoldment of its time in the double light of history and the hopes of the race, and is greatly concerned both with psychology and ethics.

In fact, it means to conduct a sympathetic analysis of social conditions, seeking remedy where remedy may be found; prevention where prevention may issue, be it from church or state; seeking patience where both prevention and remedy are remote.

In this course Sociology is made the fundamental science; Political Economy and Government are divisions of the general science. Small and Vincent, Strong, Ely and Gladden are used as texts in Sociology, Ely in Political Economy, and Andrews in Constitution. "Current Events" is made prominent in daily recitations. The trend of modern thought is observed daily. Much original writing is required of all the students in this department. Earnest debates often spring spontaneously out of the classroom discussions. The passion for good government and for good citizenship enlarges day by day under such an environment.

## COMMERCIAL COURSE.

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### JUNIOR YEAR.

#### FALL TERM.

|                           |   |                                      |
|---------------------------|---|--------------------------------------|
| Commercial Arithmetic, 5. | } | P. M.—Bookkeeping and<br>Penmanship. |
| Spelling, 5.              |   |                                      |
| Rhetoric, 5.              |   |                                      |

#### WINTER TERM.

|                             |   |                                      |
|-----------------------------|---|--------------------------------------|
| Commercial Arithmetic, 5.   | } | P. M.—Bookkeeping and<br>Penmanship. |
| Composition, 3.             |   |                                      |
| Themes, 2.                  |   |                                      |
| Business Correspondence, 5. |   |                                      |

#### SPRING TERM.

|                                  |   |                                         |
|----------------------------------|---|-----------------------------------------|
| Commercial Arithmetic, 5.        | } | P. M.—Business Practice<br>and Banking. |
| Accounting, 5.                   |   |                                         |
| Business Correspondence and Pen- |   |                                         |
| manship, 5.                      |   |                                         |

### SENIOR YEAR.

#### FALL TERM.

|                          |   |                                       |
|--------------------------|---|---------------------------------------|
| Stenography, 5.          | } | P. M.—Stenography and<br>Typewriting. |
| Commercial Geography, 5. |   |                                       |

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#### WINTER TERM.

|                                       |   |                                       |
|---------------------------------------|---|---------------------------------------|
| Commercial Law, 4.                    | } | P. M.—Stenography and<br>Typewriting. |
| Constitution of the United States, 3. |   |                                       |
| Sociology, 3.                         |   |                                       |
| Stenography, 5.                       |   |                                       |

#### SPRING TERM.

|                       |   |                                             |
|-----------------------|---|---------------------------------------------|
| Stenography, 7.       | } | P. M.—Typewriting and Of-<br>fice Practice. |
| Commercial Law, 4.    |   |                                             |
| Political Economy, 4. |   |                                             |



The aim of the course is to meet the wants of those who are seeking a high grade business education. It trains the student to meet the exacting demands of modern commercial life. The fact is recognized that the market is already overcrowded with young people of limited and imperfect preparation and unable to avail themselves of the opportunities of the business world.

It is not the design of the Commercial Department to educate students for a business life in the shortest possible time, but rather to train them in such manner that they may fill positions of the highest trust. Experience has clearly shown that persons of limited and imperfect training invariably fall into the lowest class of workers; while those who are well trained and educated are sought and liberally paid for their services.

The instruction of this Department articulates so closely with the work of the College that the two harmoniously blend and unite to give a thoroughly cultural as well as technical training for the higher business pursuits.

Students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advantage of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well-furnished museum, the College associations of all kinds, and all the elaborately equipped laboratories are open to students of the department, and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

**THOROUGHNESS.**—One of the most important features of the course is thoroughness. Herein lies the secret to success, lucrative positions and promotion. Thorough training is absolutely necessary. The student's work is examined critically and is not credited unless it is up to the required standard.

**SHORTHAND.**—It has been truly said that the practice of shorthand "draws out all the powers of the mind; it incites invention, improves the ingenuity, matures the judgment, and endows the retentive faculty with the superior advantage of precision, vigilance, and perseverance."

The student devotes from two to four hours per day throughout the Senior year to the acquirement of this useful and indispensable art, using Isaac Pitman's Shorthand Instructor (20th Century Edi-

tion), as a guide. Students who complete this course find no difficulty in obtaining high-grade positions.

Aside from the value of phonography as a means of obtaining an English education, embracing, as it does, a thorough knowledge of orthography, grammar, composition, rhetoric, etc., the earnest student has no surer means of turning his knowledge to practical account than by the successful completion of this course, which includes instruction in punctuation, preparation of manuscript for the press, proof reading, etc.

The work of the department appeals strongly to teachers, graduates of high schools, academies, and universities, as the surest means of bettering their immediate condition, and in many instances proves a stepping-stone to higher pursuits and positions of trust and responsibility.

THE LITERARY AND SCHOLASTIC ATTAINMENTS of the graduates of the Commercial Course is the strongest factor in commending them to the business and professional world, into which they are received without question. There is no better assurance of obtaining a "position" than the possession of a diploma from this department.

THE UNITED STATES CIVIL SERVICE offers opportunities for which it is the special province of this department to prepare young people desirous of qualifying for the examinations.

Students who pass the preliminary amanuensis examinations the first week in April of each year, are allowed to begin specialization in the various branches of reporting, *i. e.*, mercantile, legal, legislative, and technical.

TYPEWRITING.—"The typewriter is so ingenious and simple in its construction that the average person can learn to write words on it in ten minutes' time. Hence the long popular belief that no special instruction is needed, but that a few days' practice alone will enable one to become a competent and valuable operator. This fallacy has brought disappointment and failure to many a bread-winner, has been the cause of untold annoyance to employers, and has forced capable and conscientious teachers to let their students go out unprepared because public opinion refused the time and expense necessary to learn properly the art of Typewriting. As a natural result, business men are now complaining bitterly of the incompetency of applicants, even when they are the product of so-called business schools."—*Complete Typewriting Instructor—Barnes.*

"The workers of the world bend before the machine which *Puck* parodies as being 'more puissant than the Gatling gun,' and eagerly acknowledge its power. Commerce, the law, science, literature, art, business everywhere, education in manifold aspects—one and all, go to the little machine for some measure of assistance, and no branch of physical or intellectual labor comes away unsatisfied.

"Man's life is quickened and lengthened by the tireless activity of the writing machine. Its incessant click beats marching time to every forward movement, and makes progress more progressive. Men turn away from weary toil to find labor lightened with sympathetic zeal when the fingers begin their salutary movements.

"A new profession has opened to the gentler sex, and all welcome her to a place in affairs. Educators are not indifferent to the signs of the times, and the schools are receiving an impulse from no less an agency than the writing machine.

"Hardly since the dawn of the present era of civilization has an invention or discovery worked greater wonders; never, we think, has a single mechanical device contributed so widely and so variously to the welfare of man. The pen is indeed mighty, but the steel corrodes. The tongue is silvery with speech, but the rhythmic keys speed language on its mission. The mind is pregnant with fertile thoughts, but ease and speed of writing makes the human intellect ten times more prolific. Commerce expands with the peopling of the continents, and the natural growth of prosperity on land and sea; but prominent among the activities of the world the typewriter already occupies an important place—busy where business is liveliest, making man's intercourse with man readier and closer, and contributing more or less directly to the success of almost every human achievement."—*Bates Torrey*.

Needless to say the "touch" system of typewriter operation is taught. The equipment is unequalled anywhere in the West, and consists of twenty-five machines of standard make. From two to three hours per day are given to instruction and practice in this subject. The following outline, taken from Pitman's *Phonetic Journal*, is followed with slight variation:

1. Business correspondence from shorthand, longhand and printed matter.

2. Copying badly-written and confused manuscript; literary, technical, commercial, legal, scientific and medical matter. Correct arrangement of manuscript matter; necessary line-spacing for various kinds of work, foot-notes and extracts, side-headings.

3. Advanced displayed work. Correct centering of headlines; arranging matter to balance on paper so as to get top and bottom margins approximately equal.

4. Advanced tabular work. Rules for dividing scale in order to arrange columns regularly and accurately. Accounts, red ruling. Schedules of quantities and prices, market, stock exchange, and other quotations and tabulated matter from plain and rough draft.

5. Legal work, bills of costs, agreements, indentures, wills, affidavits, statements of claim, writs, depositions, etc., etc., draft copies engrossments, correct endorsement, and backing.

6. Balance sheets and financial statements; wide and narrow carriage; red ruling.

7. Specifications: architects', engineers', contractors', electricians'.

8. Companies' prospectuses; corporation reports.

9. Tenders, estimates, and contracts.

10. Commercial, literary, and legal abbreviations; chemical, mathematical, and other signs; foreign words and phrases of international use, with their meanings.

11. Dramatic work; prompt book; actors' parts; correct red ruling.

12. Duplicating, carbon, semi and full; stencil, letter press copying.

13. Mechanical construction, manipulation, and care of the machine; degree of touch, the wrong side of the paper must not show perforation by full stops, commas, hyphens, etc.; possible defects and accidents; rectifying temporary derangements likely to occur to machine.

14. Correct use of the various characters composing the keyboard; signs made by combinations, foreign accent marks, diphthongs, raised letters. Roman notation.

15. Writing short sketches and answering questions relating to office routine, commerce, banking, insurance, and stocks.

16. Writing short essays on subjects of literary interest.

17. A syllabus of the United States Civil Service.

**BOOKKEEPING.**—The student is first instructed in the elements and principles of theoretical bookkeeping, both double and single entry, and as soon as he shows that he has a clear understanding of the elementary work, he is promoted to advanced bookkeeping. Here he learns to keep books in various lines of business, including mercantile, both wholesale and retail; and manufacturing. After acquiring



sufficient skill in advanced bookkeeping, and passing satisfactory examinations, the student enters actual business practice; is assigned his official desk as a business man, and is furnished with a cash capital and stock of merchandise, according to the business in which he is to engage. He issues and receives every form of business paper, including checks, notes, drafts, orders, receipts, leases, articles of agreement, bills, invoices, statements of accounts, account sales, bills of lading, money orders, C. O. D. sales and purchases, and, in fact, every form and description of business paper in use. He writes and receives letters pertaining to all affairs of the business, and secures a first-class drill in correspondence. He is taught to brief and file every business paper received. His work covers the entire range of business transactions, from the simplest to the most difficult.

In the theoretical work the student is made familiar with the first principles of the science of bookkeeping. He is guided carefully until he can master the simpler forms of the daybook, journal, cash-book, and ledger, and can post and close his books correctly. Frequent exercises in journalizing and closing ledgers are given for class drill. In the advanced bookkeeping the student will gradually be required to master all forms and sets of books in the various lines of business, which include partnership, joint stock companies, corporations, etc.

A rigid inspection and examination of books and papers relating thereto, is frequently made and under no condition will work be passed and credited unless it is strictly up to the required standard.

The office department consists of a national bank, a state bank, a wholesale and retail mercantile business, and a commission office; also facilities for a commercial exchange, and is equipped with books, modeled after those used by large concerns, which are kept by the students. The student has from six to twelve weeks' office practice before entering the final examinations.

The average student will complete the bookkeeping in one school year, after which, if capable in other directions, he will be able to do the accounting work required in any business office.

COMMERCIAL LAW.—The need for a thorough understanding of the underlying principles of this subject, on the part of those who expect to become identified with the practical world of affairs, is patent to every prudent business man and woman. To meet this requirement a thoroughly systematic and comprehensive course of instruction is offered with the end in view of preparing the student for



the exacting demands of modern commercial life. A study of the business laws and customs of foreign countries with which we have interests in common is included in this course, which continues during the Winter and Spring terms of the Senior year. The work of the text is supplemented by lectures on current topics of general interest having a direct bearing upon the subject.

COMMERCIAL GEOGRAPHY.—In this age of industrial achievement and commercial advancement, in which the United States plays so important a part, a knowledge of the conditions surrounding the growth of the Nation as a commercial and maritime power is indispensable. During the Fall term of the Senior year the student devotes five hours per week to this interesting topic, which includes a study of “the *natural resources and productions of the earth; of the distribution of products; of routes of commerce and lines of transportation; and of markets and manufactures,*” including such subjects as Domestic, Colonial, Foreign, and Carrying Trade. Adam’s text-book of *Commercial Geography* is used, added to which the well selected library of the College, the publications of the *National Geographic Society*, and the copious maps of the department, serve to make this delightful study a wellspring of absorbing interest and a never-ending source of profit.

COMMERCIAL ARITHMETIC.—Mathematical accuracy and rapidity are necessary in the present business life. To teach the student to compute correctly and rapidly is the aim of this work. Daily classes are conducted throughout the Junior year, in which all practical short methods are taught.

PENMANSHIP.—Penmanship is taught in an interesting and systematic manner. No branch of study in a business education is of greater importance. One of the best recommendations in securing a position is a good strong business handwriting. No waste of time is allowed in useless flourishes, the student being compelled to learn a clear, legible rapid business hand, such as strikes the mind of the business man as at once the most practical. A complete drill in pen-holding, position and movement is given.

EXPENSES.—Tuition is free. All books and stationery for the two years’ course need not cost to exceed \$25. Board and lodging at from \$3 to \$4 per week; club board at reduced rates.

ADVANTAGES.—1. Free tuition. 2. Text-books and all stationery sold at cost. 3. A specialist in charge of each class. 4. First-class office equipments for actual business. 5. The large library, museum,

College associations and laboratories open to students. 6. Military drill. 7. The students, being under the direct influence of the College, receive culture and obtain privileges that cannot be equalled by business colleges.

REQUIREMENTS FOR ADMISSION.—Entrance examinations will be held at the opening of the Fall term. Candidates for admission must be at least fifteen years of age, must show that they have sufficient attainments to enable them to carry on the work, and must pass a satisfactory examination in all branches named in the course for the Freshman class. Those who are prepared for the work will receive advanced standing.

DIPLOMA.—Students who complete the two years' course will receive a diploma.

## MILITARY DEPARTMENT.

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The importance of military training, both to the individual and the State, is so apparent that comment thereon is here unnecessary, further than to say that the physical training and development alone is sufficient proof of its benefits. The growing demand for military instruction in connection with school work, and the fact that the State Agricultural College is the only State institution where such a department exists, has led the authorities to make the work as thorough as practicable.

For instruction the cadets are formed into companies and the companies form a battalion. Each company has a captain, two lieutenants, five sergeants and five corporals. The officers and non-commissioned officers are selected from those in the higher classes showing the most proficiency in the work.

The work in the Fall term embraces the school of the soldier, company and battalion in close order. Battalion drills are continued at intervals throughout the year. Extended order drill is taken up in the Winter term and continued the Spring term. This includes skirmishes and battle exercises in platoon, company and battalion; advanced guard, rear guard and outpost duties. Inspections, battalion parades, guard mounting and street parades are occasionally given. Inspections are given at such times as to insure the proper care of the equipment. All military exercises are performed in accordance with the United States Drill Regulations.

Practice in Artillery drill is had during the Spring term. This is instruction in the school of the canoneer, unmounted, and is in accordance with United States Artillery Drill Regulations.

The signal corps does practical work in transmitting messages, both by means of signal flags and with heliographs. The systems used are the same as those used in the Government service.

During unfavorable weather theoretical instruction is given, with occasional drills in the manual of arms, which can be executed by the battalion as a whole, within the armory.

The military encampment, held at the close of the school year, affords an excellent opportunity for further instruction in all the duties of the soldier in camp and garrison. To fully carry out this plan in accordance with regulations, the College Battalion has access to the camp and garrison equipage of the State Militia.

The Department is equipped with 250 cadet rifles, belts, cartridge boxes, bayonets and scabbards; two 3-inch rifled field pieces; National and Battalion colors; swords for officers; signal flags and heliographs; drums and trumpets for a field band of fourteen members.

Regular Military encampments are held at least every two years. This is considered a part of the college work and the attendance of the cadets upon these outings is compulsory.

### BATTALION ROSTER.

MAJOR—*R. A. Maxfield.*

CAPT. AND CHIEF OF ARTILLERY—*H. F. Sturdevant.*

FIRST LIEUT. AND ADJUTANT—*E. P. Taylor.*

SERGEANT MAJOR—*J. N. Clark.*

COLOR SERGEANT—*F. W. Collins.*

PRINCIPAL MUSICIAN—*A. W. Baylis.*

SERGEANT OF SIGNAL CORPS—*R. N. Underwood.*

DRUM MAJOR—*Earl Riddell.*

#### COMPANY A.

CAPTAIN—*A. C. Downey.*

1ST LIEUTENANT—*L. E. Cattell.*

2ND LIEUTENANT—*Oro McDermith.*

1ST SERGEANT—*Chas. Burnhimer.*

SERGEANTS—*J. D. Norvell, Ray Murphy, J. E. Lewis.*

CORPORALS—*J. O. Thistle, Clair Hotchkiss, E. L. Pell, C. B. Kortz, W. Blydenburgh.*

#### COMPANY B.

CAPTAIN—*I. W. Veazey.*

1ST LIEUT.—*F. N. Langridge.*

2ND LIEUT.—*Harry True.*

1ST SERGEANT—*C. E. Davis.*

SERGEANTS—*L. C. Graves, Fred Stearly, J. A. Phillips.*

CORPORALS—*Matthew Auld, R. G. Peck, O. W. Jackson, Geo. McNeil, Alex. McNeil.*

## COMPANY C.

CAPTAIN—E. N. Graves.

1ST LIEUT.—H. J. Faulkner.

2ND LIEUT.—L. N. Chatfield.

1ST SERGEANT—Graham Fuller.

SERGEANTS—W. A. Lamb, D. L. Alter, Ansel Harding.

CORPORALS—John Williamson, H. M. Cattell, Floyd Curfman, D. D. Gross, H. V. Hubbel.

## COMPANY D.

CAPTAIN—O. P. Pennock.

1ST LIEUT.—F. C. Bishopp.

2ND LIEUT.—R. E. Richardson.

1ST SERGEANT—Vernard Babbitt.

SERGEANTS—J. F. Reed, A. R. Cliff, R. P. Jackson.

CORPORALS—W. C. Woods, Ralph Parshall, F. N. Bills, G. F. Schattinger, W. J. McAnelly.



## LIBRARY.

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The College Library was founded in 1878 by donations from the members of the faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax.

The Library is supported by purchasing funds made for the Library directly and for the books of the departments. This is derived from the funds of the College. In addition there is a fund known as "The Annie Jones Fund," from the name of the donor, which yields a small annual income. This Annie Jones Fund is carefully used for books that will be a shelf memorial to the fund.

The Library contains nearly 14,000 volumes and about 5,000 pamphlets (a part of which is the Experiment Station Library), and is classified. (Decimal.)

The reading room is well supplied for the present and a glance at the list here given will give the reader some idea of the nature and scope of the periodical list available.

The catalogue of the Library is a simple dictionary card catalogue and is made for student use.

The private library of Dr. Aylesworth has been placed in the main building of the College, and is a good scholar's library. It is especially rich in modern literature and is an unusually large private library. It is a well-balanced collection of books and is extremely useful to the advanced students, who have special privileges in it, granted by the President.

The College Library is open from 7:30 a. m., until 6:00 p. m., except Saturdays, holidays and Sundays. On Saturday the Library is open from 8 to 4 and on holidays as the occasion demands.

The Library may be called a typical College Library, as it stands, with a large collection in history and literature, but as this library will not remain as it now is, it may be better to describe the plan and the future of the Library.

The Library is an institution within an institution and grows to the limit of the response of its environment. The Library is a

help to the student at every turn in College and is to be judged by its service; if it help it is a good library, and if not, it is a poor library. The College Library has responded to the call from the student body, and the College has responded to the call for support, until the library has completely outgrown its present quarters and overflowed into other rooms. As soon as the new building for the department of Civil and Irrigation Engineering is completed, the Library will be moved into a building devoted entirely to the Library, which will provide one entire floor for a reading and reference room, another for the stack room and another for the use of the apprentices and the classes in Library Science and Library Handicraft.

In this building we shall have the best scientific Library in the West, and shall be able to do things that will give the college within the next five years a collection of 25,000 or 30,000 volumes.

A list of the periodicals, subscription list, exchanges, etc., is given herewith, but no list can quite cover the ground which may be well described as departmental affiliations, and which are especially rich. Our departmental libraries take on most of their professional value from faculty association and the wide acquaintance of the faculty members with the professional world in engineering, agriculture, commerce, domestic science, biological and natural sciences and their applied forms in the work here.

### PERIODICALS.

(Periodicals starred are exchanges.)

Academy of Natural Sciences (proceedings).

Academy of Science (publications).

\*Acker und Gartenbau Zeitung, Milwaukee, Wis.

\*Agricultural Epitomist, Spencer, Ind.

\*Agricultural Experiments, Minneapolis, Minn.

\*American Agriculturist, New York.

American Architect.

American Economic Association (publications).

American Gardening.

\*American Grange Bulletin, Cincinnati, Ohio.

American Historical Review.

American Homes.

American Journal of Science.

American Journal of Sociology.

American Kitchen Magazine.

- American Machinist.
- American Mathematical Journal.
- American Meterological Journal.
- American Monthly Microscopical Journal.
- American Naturalist.
- American Philosophical Society (publications).
- American Physical Review.
- American Society of Civil Engineers (publications).
- American Veterinary Review.
- Annals of American Academy, Political and Social Science  
(Handbook, etc.)
- Annals of Botany.
- Anthony's Photographic Bulletin.
- Art Amateur.
- Art Interchange.
- Atlantic Monthly.
- Auk.
- Bankers' Magazine.
- Boiler Maker and Sheet Metal Worker.
- Bookman.
- Bookseller, Newsdealer and Stationer.
- Boston Public Library Bulletin.
- Botanical Gazette.
- Breeders' Gazette.
- Bulletin of Bibliography.
- \*Bulletin of Manual Training School, Hawaii.
- Bulletin of Torrey Botanical Club.
- \*Bussey Institution (publications).
- Carnegie Library Bulletins, Pittsburg.
- Camp and Plant.
- Canadian Entomologist.
- Canadian Horticulturist.
- Cassier's Magazine.
- Century.
- Chautauquan.
- Chemical News.
- Colorado Christian.
- \*Colorado Medical Journal.
- Contemporary Review.
- Cosmopolitan.

- Country Life in America.  
Cram's Magazine.  
Critic.  
Cumulative Book Index.  
Cumulative Index to Periodicals.  
Current History.  
Current Literature.  
\*Dakota Farmer, Aberdeen.  
\*Dairy and Creamery.  
Deutsches Botanisches Monatschrift.  
Dial.  
Eclectic Engineering Magazine.  
Educational Review.  
\*Edwards' Fruit Grower and Farmer, Missoula, Mont.  
Electrical World and Engineer.  
\*Elgin Dairy Report, Elgin, Ill.  
Elisha Mitchell Scientific Society.  
Engineering (London).  
Engineering Magazine.  
Engineering News.  
Engineering Record.  
Entomologist.  
\*Farm and Home, Springfield, Ill.  
\*Farm Home, Springfield, Mass.  
\*Farm News, Newark, N. J.  
\*Farmers' Call.  
\*Farmers' Guide, Huntingdon, Ind.  
\*Farmers' Home, Dayton, Ohio.  
\*Farmers' Review, Chicago.  
\*Farmers' Tribune, Des Moines, Ia.  
\*Farmers' Voice, Chicago.  
\*Field and Farm, Denver.  
\*Florist.  
\*Flour and Feed, Waukegan, Ill.  
Forum.  
Fortnightly Review.  
Gardener's Chronicle (London).  
Gardening (London).  
Good Housekeeping.  
Gunton's Magazine.

- Harper's Bazar.
- Harper's Magazine.
- Harper's Weekly.
- Health.
- Hoard's Dairyman.
- Holstein Friesian Register.
- \*Home, Field and Forum, Oklahoma City.
- \*Homestead, Des Moines, Ia.
- Independent.
- Index and Review.
- Indiana Academy of Science.
- \*Indiana Farmer, Indianapolis, Ind.
- International Journal of Ethics.
- International Monthly.
- International Studio.
- \*Interstate Manufacturer, St. Louis.
- \*Iowa Horticultural Society.
- \*Irrigation Age.
- \*Irrigation Era.
- \*John Crerar Library (Publications), Chicago.
- Johns Hopkins Studies.
- Journal of American Chemical Society.
- \*Journal of Associated Engineering Societies.
- Journal of Botany.
- Journal of Chemical Society, London.
- Journal of Cincinnati Society of Natural History.
- Journal of Franklin Institute.
- Journal of Morphology.
- Journal of Western Society of Engineers.
- \*Kansas Farmer, Topeka.
- \*Kansas State Horticultural Society.
- Ladies' Home Journal.
- Land of Sunshine (now Out West).
- Landwentschaftlichen Versuchs Stationen (Die).
- Library.
- Library Journal.
- Literary Digest.
- \*Louisiana Planter.
- \*Lloyd Library and Museum, Cincinnati, Ohio.
- Magazine of American History.



- \*Massachusetts Horticultural Society, Boston.  
McClure's Magazine.
- \*Massachusetts Ploughman, Boston.  
Meehan's Monthly.
- \*Michigan Sugar Beet, Bay City, Mich.  
Microscope.
- \*Milk News, Chicago.  
Mind (London).
- \*Mirror and Farmer, Manchester, N. H.
- \*Missouri Valley Farmer, Kansas City, Mo.  
Munsey.  
Music.  
Nation.
- \*National Farmer and Stock Grower.
- \*National Stockman and Farmer, Pittsburg.  
Nature.  
Needlecraft.  
New England Magazine.
- \*New York Produce Review and American Creamery.  
New York Times' Saturday Review of Books.
- \*New York State Museum.  
North American Review.
- \*Ohio Farmer, Cleveland.
- \*Oklahoma Farm Journal.
- \*Operative Miller, Chicago.
- \*Orange Judd Farmer, New York City.  
Outing.  
Outlook.
- \*Pacific Coast Fruit World, Los Angeles.
- \*Pacific Fruit World, San Francisco.  
Pacific Rural Press.
- \*Portland Society of Natural History, Maine.  
Power.  
Popular Science Monthly.  
Political Science Quarterly.  
Popular Science News.
- \*Practical Farmer, Philadelphia.
- \*Practical Fruit Grower, Springfield, Mo.
- \*Practical Nurseryman.
- \*Prairie Farmer, Chicago.

Psyche.

Public Libraries.

Public Library Bulletin.

\*Public Library Monthly Bulletin of Books Added (Boston).

Public Opinion.

Publishers' Weekly.

\*Railway and Engineering Review.

\*Ranch and Range, Seattle.

\*Reliable Poultry Journal.

Revue Generale Botanique.

Review of Reviews.

\*Rocky Mountain Call, Denver.

\*Rocky Mountain Educator, Denver.

\*Rocky Mountain Farmer and Miner, Denver.

Rural New Yorker.

\*Rural Topics, Morgan City, La.

Sanitary Inspection.

Science.

Scientific American *and* Supplement..

Scribner's Magazine.

\*Southern Farm Journal.

\*Southern Planter, Richmond, Va.

\*States of the United States Public Documents.

(The publications of the various states which are received as exchanges are too numerous to insert in this list; they include experiment stations, and state publications proper).

\*Sugar Beet, Philadelphia.

Success.

United States Publications.

(Departments, divisions, bureaus, commissions, etc., are too many for publication here; the Department of Agriculture, alone, is a very long list, and the Weather Service of the states of the United States is another long list.)

\*Up-to-date Farming, Indianapolis.

\*Wallace's Farmer and Dairyman, Des Moines.

Washington Historian.

Werner's Magazine.

West American Scientist.

\*West Virginia Farm Review, Charleston.

\*Western Creamery, San Francisco.

- \*Western Farmer and Breeder.  
Western Fruit Grower.
- \*Wisconsin Dairymen's Association, Fort Atkinson.
- \*Wool and Cotton Reporter, Boston.
- \*Wool Markets and Sheep, Chicago.  
World's Work.

## FOREIGN EXCHANGES.

### ARGENTINE REPUBLIC:

Ministero de Agricultura.

### AUSTRALIA:

Department of Agriculture, Perth.  
Department of Agriculture, Victoria.

### BELGIUM:

La Laiterie Belge, Renaix.

### BRAZIL:

Boletim da Agricultura.

### CANADA:

Co-Operative Farmer and Maritime Dairyman, Sussex, N. B.  
Department of Agriculture, Ottawa.  
Department of Agriculture, Ontario.  
Farmer's Advocate, London, Ont.  
Le Naturaliste Canadien, Quebec.  
Farming World, Toronto.

### COSTA RICA:

Musea Nacional.

### ENGLAND:

Ichneumonidae of South Devon.  
Mark Lane Express and Agricultural Journal, London.  
Nature, London.  
Rural World, London.

### FINLAND:

Acta Societatis Pro Fauna et Flora Fennica.

### FRANCE:

Parasitisme du Phoma Reniformis.  
Produits de la Vigne.  
Systemes de Taille.  
Defense des Recoltes par le tir du Canon.  
Note sur l'Emploi du Sulfure de Carbone.

GERMANY:

Botanisches Museum Abtheilung fur Pflanzenschutz zu Hamburg.  
Jahresbericht uber die Neuerungen und Liestungen auf dem  
Gebiete des Pflanzenschutzes.

INDIA:

Department of Land Records and Agriculture, Madras.

JAMAICA:

Institute of Jamaica.

JAPAN:

Agricultural Call.  
Insect World, Gifu.

MEXICO:

Boletin de la Comision de Parasitologia Agricola.  
Agricultor Mexicano.

NATAL:

Agricultural Journal and Mining Record.

NEW SOUTH WALES:

Agricultural Gazette, Sidney.  
Botanical Gardens, Sidney.  
Department of Agriculture, Sidney.  
The Station, Farm and Dairy, Sidney.

PERU:

Las Irrigaciones de la Costa.

SWEDEN:

Landtbrusk-Akademiens Handlingar och Tidskift.

NEWSPAPERS.

Alamosa Courier.  
Baltimore Weekly Sun.  
Berthoud Bulletin.  
Boulder Herald.  
Boulder Tribune.  
Breckenridge, Summit County Journal.  
Canon City Times.  
Central City Propaganda.  
Chicago Daily Drover's Journal.  
Colorado Springs Gazette.  
Delta Independent.

Denver Alliance.  
Denver Citizen.  
Denver Daily Stockman.  
Denver Investor.  
Denver Rocky Mountain News.  
Denver Republican (Daily and Weekly).  
Denver Record Stockman.  
Denver Western Woodman.  
Durango Wage Earner.  
Evans Courier.  
Fort Collins Argus.  
Fort Collins Courier (Daily and Weekly).  
Fort Collins Express.  
Fort Lupton Advertiser.  
Fort Morgan, Morgan County, Herald.  
Georgetown Courier.  
Gillette Forum.  
Golden Globe.  
Grand Junction—Grand Valley Sun.  
Grand Junction News.  
Greeley Sun.  
Greeley Tribune.  
Gunnison News Champion.  
Holly Chieftain.  
Holly News.  
Holyoke State Herald.  
Idaho Springs Mining Gazette.  
Idaho Springs News.  
Lamar Sparks.  
Littleton Independent.  
Loveland Reporter.  
Manzanola Success.  
Manzanola Sun.  
Montrose Press.  
Ouray Plaindealer.  
Philadelphia Public Ledger.  
Pueblo Saturday Mail.  
Rocky Ford Enterprise.  
Salida Mail.  
St. Louis Daily National Live Stock Reporter.



Salt Lake Herald.

San Francisco Examiner.

Trinidad Chronicle-News.

Windsor Leader.

Wray Wrattler.

## COLLEGE ORGANIZATIONS.

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### LITERARY SOCIETIES.

There are five Literary Societies connected with the College—the “Philo-Æsthesian,” “Columbian,” and the “Athenæum.” Meetings are held weekly throughout the school year. Students are admitted to these societies by vote of the members. The fees and dues are not burdensome.

“The Philo-Æsthesian Society” meets in the College Chapel. “The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech.”

“The Columbian Literary Society” meets in Horticultural Hall. “This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge.”

“The Athenæum Literary Society” meets in the lecture-room in the Civil Engineering Building. Its purpose is, “to advance the literary culture of its members, give them proficiency in debate, and train them in parliamentary law.”

“The Agricultural Club” meets in Agricultural Hall on Friday evening of each alternate week. It is composed largely, though not exclusively, of students taking the Agricultural course, graduates of the College, and instructors connected with the various departments doing work in Agriculture and allied subjects. Its object is to promote the study of the practical problems in agriculture.

“The Commercial Literary and Debating Club” was organized and began its work at the beginning of the new year, 1902. Its meetings are held bi-monthly. The object of the club is to afford those students who come to the College for commercial training better facilities for studying and investigating the economic and industrial problems.

Nowhere does the Literary Society stand for more than in the Agricultural College. It forms an important part of college life and

helps to put into concrete form the investigations of the classroom. The exercises of the forum and the reading table give the student a wider horizon, a widening consciousness of his own powers, and an ease in both conversation and public address.

The College takes unusual pride in the zest and finely tempered rivalry of these societies, regarding them as important co-workers in the upbuilding of the school.

### ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to encourage the study and practice of oratory in the College. Students registered in any of the four higher classes may be admitted to membership by vote of the Association.

The Association holds three contests each year; one for the members of the Sophomore and Freshman classes, another for the members of the Senior and Junior classes, and a third for the members of the Senior and Junior classes of the Commercial Department.

Three medals are awarded each year; one of gold to the successful orator in the Senior-Junior contest, and one of silver to the Sophomore-Freshman orator taking first rank, and one of silver taking first rank in the Commercial contest.

The orations are passed upon by two sets of judges; one on thought and composition and the other on delivery.

Next to Commencement week College zeal tides highest at this mid-year contest.

### NATURAL SCIENCE CLUB.

This Club was organized by the members of the Faculty and students of the College in March, 1889. The object of the organization is to keep its members informed upon recent advances in science, and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

### Y. M. AND Y. W. C. A.

This non-sectarian religious movement has had a providential growth in the colleges of the world.

The student mind has long been wearied by the endless discussions of creeds and the effort to dogmatize every being and every prin-

ciple in the universe. But no mind turns so eagerly to devotion of a rational quality and to a life of humanitarian service, as does the mind of the modern student. Witness the course of college movements for the betterment of society and the intense interest manifested by students in sociological problems.

The student's pulse beats fast beneath any heavenly vision that calls him to a wider knowledge and to a nobler appreciation of human worth. Every phase of modern science and philosophy tends to make him reverent and helpful to his fellows.

These two Christian Associations, one for young men and the other for young women, have come into college life for the two-fold purpose of enriching the faith of the individual student and unifying the student body for clean living, a tolerant bearing toward all conditions of life, and the making of a home feeling in the heart of the young man or young woman away from home the first time.

Special emphasis is laid upon unbiased Bible study in groups or circles.

The College authorities have given these organizations a permanent home in the Main College building. It was furnished by the Young Peoples' Church Societies of Fort Collins.

### **SAN JUAN BOARDING CLUB.**

A student boarding club was organized a few years ago. Accommodations for about forty students are furnished. The price of board ranges from \$2.00 to \$2.25 per week. The Club is officered by students under the supervision of the Faculty. The amount and quality of food furnished is regulated by the vote of the members of the Club.

### **ATHLETIC ASSOCIATION.**

The object is to promote the physical well-being of the members and to afford such gymnasium and field practice in athletic games as will enable the chosen representatives to participate with credit in intercollegiate contests.

It is the opinion of the Faculty that whatever excesses there may be in college athletics may best be held in check by sympathetic rather than repressive government.

There are two members of the Faculty on the Board of Directors whose business it is to direct, not to discourage, athletic achievements at home and with other colleges.

The college athlete of to-day is neither a coward nor a dullard; he is both manly and studious.

### COLLEGE PAPER.

In December, 1891, the first number of *The Rocky Mountain Collegian* appeared. Since last September the paper has appeared regularly twice a month. The columns of the *Collegian* are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official and patron of the College.

### COLLEGE ORCHESTRA AND BAND.

The College is fortunate in having a number of students who have mastered the art of brass, stringed and other instruments. They have not only given zest to College life, but have materially assisted in the entertainments of the year.

The band has been of great service in the military drill.

### COLLEGE GLEE CLUB.

In connection with the band and orchestra, the Glee Club, under the direction of Mr. Ormsby, made a successful tour of the State the past season. Their reception was not only cordial but enthusiastic. A still more extended tour is contemplated for next year.



## GENERAL INFORMATION.

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ADMISSION.—Students are admitted to the College according to the following statute: “No student shall be admitted to the Institution who is not fifteen years of age and who does not pass a satisfactory examination in arithmetic, geography, grammar, reading, spelling and penmanship.”

Therefore, pupils who have completed the eighth grade will be admitted to the first Sub-Freshman year upon satisfying the Committee on Examinations, or certified grades, or both.

The requirements for admission to the first Sub-Freshman class are those required for entrance to the best high schools. Those who have finished the ninth and tenth grades in a satisfactory manner will be admitted to the second Sub-Freshman year.

Students are admitted to the Freshman year after thorough examinations taken in the subjects contained in the first and second Sub-Freshman years, or upon the presentation of certificates of graduation from accredited high schools. Certificates from schools not accredited may be considered in arranging for entrance examinations. The following schools are accredited:

Denver High School, District No. 1.  
Denver High School, District No. 2.  
Colorado Springs High School.  
Greeley High School.  
Aspen High School.  
Durango High School.  
Canon City High School.  
Georgetown High School.  
North Denver High School.  
Pueblo High School, District No. 20.  
Pueblo High School, District No. 1.  
Fort Collins High School.  
Boulder High School.  
Golden High School.  
Trinidad High School.

Grand Junction High School.  
Cheyenne (Wyoming) High School.  
Denver Manual Training High School.  
La Junta High School.  
Idaho Springs High School.  
Central City High School.  
• Longmont High School.  
Montclair High School.  
Fort Morgan High School.  
Cripple Creek High School.  
• Victor High School.  
Leadville High School.

Candidates for advanced classes or work will be admitted by examination, or certified standing from schools having an equivalent grade of work, or both.

Applicants appearing late in the College year will be required to pass, in addition to the entrance examination, a further examination in the work already passed over by the class they desire to enter.

REGULAR AND SPECIAL COURSES.—Unless there are strong and excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or otherwise, at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular course.

REGISTRATION.—The first two days of the college year are devoted to examination and registration. New students will be met at the trains by Committees of young men and women from the Y. M. and Y. W. C. A., who will take them to the College at once for registration, and will assist them to find good homes and open for them the doors of college life.

GRADES.—In September, 1899, the passing grade was raised from 65 per cent. to 70 per cent. All students who fail to make a standing of 55 per cent. shall be considered "failed," and shall be required to

take the subject over again in class. Those making a standing of more than 55 per cent. and less than 70 per cent. shall be considered as "conditioned" and shall be allowed *one special examination* before the subject is again taught by which they may try for a passing grade of 70. In cases of a study extending over two or more terms the student, if he has an average of 55 per cent. may be allowed to continue with his class, but must finally make a grade of 70 per cent. in *one special examination* in each term. If he falls below 55 per cent. in average at the end of a term he will be dropped from the class and be required to take a lower subject.

Students who, by reason of protracted sickness, shall be absent for as much as two-fifths of the term shall be entitled to a special examination on the work done during the time of their absence.

All recitations missed, whether the absence be excused or not, shall be made up at the earliest convenience of the professor in charge. Unexcused absences are met with severe discipline.

Any student who shall have a term standing of 90 per cent. may be exempted from examination and his term standing shall be his term average.

**DISCIPLINE.**—There are no printed rules. Students are expected to deport themselves as ladies and gentlemen.

While classroom standing is the supreme test of the student's character, the Faculty takes a personal interest in each student, seeking for his highest discipline, physically and morally, as well as mentally.

The moral tone of the College is so high that any one transgressing the commonly accepted laws of good behavior finds himself an outcast among the students unless reformation is prompt and permanent.

**ATHLETICS.**—The Faculty believes in a sympathetic government of athletics. Manly conduct is demanded in sports as well as elsewhere in college life. A certain high grade of proficiency in the classroom is required for recognition in athletics.

**LEAVING COLLEGE.**—Temporary leave of absence from the College must be obtained from the President. Final separation from College must be acted upon by the Faculty.

**DEGREES.**—Upon those who complete the work of any of the six courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

Students who complete the Commercial course will receive a diploma.

On those who already have the degree of Bachelor of Science the degree of Master of Science will be conferred on the completion of a course of study which has been accepted by and been under the direction of the Faculty. The course must extend through at least a year and should include one major and two minor lines of work. The course of work should be accepted as early as October. The subject of the thesis presented should be selected by December, and the thesis itself, which should show power of independent investigation, presented by May 1st, preceding commencement.

The degree of Civil or Mechanical Engineer will be conferred on similar conditions and for a similar amount of technical work, which must also show the possession of experience on the part of the applicant.

EXPENSES.—All College fees were abolished in January, 1891. TUITION IN ALL THE REGULAR AND SPECIAL CLASSES OF THE COLLEGE IS FREE. There is no charge of any kind for material used in the laboratory work or for books taken from the College Library.

A boarding club, the membership being about forty, has been organized and is managed by the students. The management of this club is so successful and economical, that it suggests the desirability of other organizations of the same character. In this manner board may be obtained at \$2.25 per week. Well furnished rooms, lighted, heated, and cared for, may be had at 75 cents per week.

Students can secure lodging and board in excellent private families at from \$3.25 to \$4.00 per week.

The College authorities are gratified to be able to announce that many of the best homes of Fort Collins are thus opened to students at reasonable rates. No one can estimate the influence of home life thus afforded the young student who is away from home for the first time.

To those who desire to board themselves ample and reasonable opportunities are afforded.

The College is an employer of student labor to a limited extent. In the year just closed our students received \$3,500 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.



Fort Collins is a temperance town, absolutely free from the evils that so often beset students with alluring temptations.

Its church privileges are many and of the most refining and helpful quality. While students are not required to report church attendance, they are encouraged to cultivate the religious side of their natures. An afternoon service is held at the College every Sunday.

**DRILL AND PHYSICAL CULTURE.**—All male students are required to procure a uniform immediately after registration, costing about \$14.00, and to drill forty minutes each school day. This, of itself, is a training in physical bearing and a discipline leading to promptness and obedience. The ladies have a daily drill in physical culture. Opportunities are afforded during the year for a public exhibition of physical culture.

The end in view in establishing the Agricultural College was to train the heart, the head and the hand—the trinity of the new education. To make practical men and women for the work world, in field, shop, office and home; to make energetic, patriotic citizens; through its Faculty and students to develop the best resources of this great commonwealth.

The State Board of Agriculture takes pleasure in announcing the extension of the courses of study. This change will be in effect September 2, 1902. It will not, however, affect the classes of 1903 and 1904.

The Board has long felt that the College did not carry its students far enough into applied science to fully equip them for the best positions in the industrial and commercial world. By these changes the graduates of the State Agricultural College will be able to meet the fullest demands of the departments of civil and mechanical engineering, farming of every variety, architecture, commerce, domestic science, etc., etc., Thus, the Agricultural College of Colorado is placed upon a level with the two or three leading land-grant colleges of America.



**Register of Students**

**AND**

**Graduates.**



# STUDENTS

1901-1902.

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## POSTGRADUATES.

|                           |                             |
|---------------------------|-----------------------------|
| James H. Andrews.....     | Fort Collins, Colorado      |
| Clarence J. Griffith..... | Fort Collins, Colorado      |
| Ross D. Howard.....       | Fort Collins, Colorado      |
| Royal S. Howlett.....     | Fort Collins, Colorado      |
| Joseph N. Ostrander.....  | Coulter, Colorado           |
| Henry F. Sturdevant.....  | Steamboat Springs, Colorado |

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## SENIOR CLASS.

|                           |                            |
|---------------------------|----------------------------|
| Lorna E. Annis.....       | Fort Collins, Colorado     |
| Fred C. Bishopp.....      | Virginia Dale, Colorado    |
| Addie S. Bristol.....     | Fort Collins, Colorado     |
| Lewis E. Cattell.....     | Fort Collins, Colorado     |
| Leslie N. Chatfield.....  | Fort Collins, Colorado     |
| Francis W. Collins.....   | Denver, Colorado           |
| Wilhelmina Douglass.....  | Fort Collins, Colorado     |
| Austin C. Downey.....     | Fort Collins, Colorado     |
| Howard J. Faulkner.....   | Fort Collins, Colorado     |
| Hattie F. Gage.....       | Fort Collins, Colorado     |
| Ernest N. Graves.....     | Fort Collins, Colorado     |
| Lenore Gunn.....          | Fort Collins, Colorado     |
| Harry V. Jessup.....      | Fort Collins, Colorado     |
| Nellie M. Killgore.....   | Fort Collins, Colorado     |
| Fred N. Langridge.....    | Boulder, Colorado          |
| Clara L. Love.....        | Fort Collins, Colorado     |
| Oro McDermith.....        | Leadville, Colorado        |
| Ray Murphy.....           | Glenwood Springs, Colorado |
| Oliver P. Pennock.....    | Bellevue, Colorado         |
| Robert E. Richardson..... | Fort Collins, Colorado     |
| Olive L. Sheldon.....     | Fort Collins, Colorado     |

|                          |                        |
|--------------------------|------------------------|
| Harry True.....          | Nepesta, Colorado      |
| Eleanor Tomlin.....      | Fort Collins, Colorado |
| Estes P. Taylor.....     | Fort Collins, Colorado |
| Robert N. Underwood..... | Paonia, Colorado       |
| Irwin W. Veazey.....     | Fort Collins, Colorado |

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## JUNIOR CLASS.

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|                           |                                  |
|---------------------------|----------------------------------|
| Delmer L. Alter.....      | New Windsor, Colorado            |
| Charles W. Burnhimer..... | Breckenridge, Colorado           |
| Helen A. Berry.....       | Stout, Colorado                  |
| Wardwell Blydenburgh..... | Saratoga, Wyoming                |
| Vernard Babbitt.....      | Eaton, Colorado                  |
| Frank N. Bills.....       | Denver, Colorado                 |
| Donald L. Carver.....     | Castle Rock, Colorado            |
| Albert R. Cliff.....      | Stout, Colorado                  |
| Charles E. Davis.....     | Westcliff, Colorado              |
| Susan F. Dotson.....      | Ludlow, Colorado                 |
| Cale L. Estes.....        | Gunnison, Colorado               |
| Graham Fuller.....        | Fort Collins, Colorado           |
| Dwight D. Gross.....      | Greeley, Colorado                |
| Leonard C. Graves.....    | Broomfield, Colorado             |
| Marie Gill.....           | Laramie, Wyoming                 |
| Bernard R. Hensel.....    | Grand Junction, Colorado         |
| Ansel Harding.....        | Fort Collins, Colorado           |
| Robert P. Jackson.....    | Denver, Colorado                 |
| John H. Lewis.....        | Timnath, Colorado                |
| William A. Lamb.....      | Hillside, Colorado               |
| Ida F. McCain.....        | Fort Collins, Colorado           |
| James D. Norvell.....     | Fort Collins, Colorado           |
| Ernest L. Pell.....       | Niwot, Colorado                  |
| John A. Phillips.....     | Fort Collins, Colorado           |
| Jennie A. Phillips.....   | Fort Collins, Colorado           |
| Joseph F. Reed.....       | Fort Collins, Colorado           |
| Julio Reys.....           | Buenos Ayres, Argentine Republic |
| Fred Stearley.....        | Laporte, Colorado                |
| Thane E. Schureman.....   | Fort Collins, Colorado           |
| Florence M. Stuver.....   | Fort Collins, Colorado           |

|                        |                   |
|------------------------|-------------------|
| Florence A. Tharp..... | Laporte, Colorado |
| Louis Tuckerman.....   | Greeley, Colorado |

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## SOPHOMORE CLASS.

|                           |                            |
|---------------------------|----------------------------|
| Mathew Auld.....          | Fort Collins, Colorado     |
| Lilla M. Barkley.....     | Fort Collins, Colorado     |
| Alice Barry.....          | Fort Collins, Colorado     |
| Lorraine M. Bartels.....  | Pueblo, Colorado           |
| Nellie Beach.....         | Fort Collins, Colorado     |
| Ray H. Bradley.....       | Rock Rapids, Iowa          |
| Benjamin F. Cooper.....   | Greeley, Colorado          |
| Wayne A. Cochrane.....    | Jackson, Michigan          |
| Lloyd J. Cain.....        | Fort Collins, Colorado     |
| Edwin A. Drake.....       | Fort Collins, Colorado     |
| Caroline A. Devers.....   | Fort Collins, Colorado     |
| Myra Eggleston.....       | Grand Junction, Colorado   |
| Wallace L. Eggleston..... | Grand Junction, Colorado   |
| Clair E. Hotchkiss.....   | Hotchkiss, Colorado        |
| Christina E. Holmes.....  | Canon City, Colorado       |
| Oro K. Holly.....         | Edgewater, Colorado        |
| Rankin D. Jones.....      | Cincinnati, Ohio           |
| Orin W. Jackson.....      | Cripple Creek, Colorado    |
| Charles R. Jones.....     | Ridgway, Colorado          |
| Jessie L. Kissock.....    | Fort Collins, Colorado     |
| Eva A. Kimmons.....       | Walden, Colorado           |
| Charles W. Kelly.....     | Fort Collins, Colorado     |
| Charles B. Kortz.....     | Fort Collins, Colorado     |
| Charles W. Lucas.....     | Greeley, Colorado          |
| Charles F. Lundberg.....  | Denver, Colorado           |
| Edwin B. Lindstrom.....   | Tie Siding, Wyoming        |
| Robert B. McLean.....     | Cripple Creek, Colorado    |
| Mary A. McCabe.....       | Fort Collins, Colorado     |
| William J. McAnelly.....  | Fort Collins, Colorado     |
| Henry H. Miller.....      | Fort Collins, Colorado     |
| Peter J. Mulder.....      | Colorado Springs, Colorado |
| George W. McNeil.....     | Denver, Colorado           |
| Charles R. Marshall.....  | La Junta, Colorado         |
| George M. Neel.....       | Greeley, Colorado          |



|                         |                          |
|-------------------------|--------------------------|
| Fred C. Nichols.....    | Trinidad, Colorado       |
| Ralph Parshall.....     | Creswell, Colorado       |
| Russell G. Peck.....    | Empire, Colorado         |
| Mattie Prendergast..... | Fort Collins, Colorado   |
| Jessie C. Piatt.....    | Fort Collins, Colorado   |
| Harry Robertson.....    | Trinidad, Colorado       |
| John E. Ramsey.....     | Crook, Colorado          |
| Ethel M. Schureman..... | Fort Collins, Colorado   |
| Grace E. Sankey.....    | Fort Collins, Colorado   |
| Emma W. Stuver.....     | Fort Collins, Colorado   |
| Thomas A. Tomlin.....   | Fort Collins, Colorado   |
| Laura Taylor.....       | Fort Collins, Colorado   |
| Ina M. Thorborg.....    | Eagle, Colorado          |
| Anna M. Tuttle.....     | Boulder, Colorado        |
| Ralph S. Trout.....     | Canon City, Colorado     |
| Ralph W. Todd.....      | Grand Junction, Colorado |
| John O. Thistle.....    | Grand Junction, Colorado |
| Oscar A. Wolfe.....     | Silver Cliff, Colorado   |
| John Williamson.....    | Fort Collins, Colorado   |
| Major C. Weaver.....    | Manzanola, Colorado      |
| Glenn G. Walter.....    | Fort Collins, Colorado   |
| Perry Zenor.....        | Fort Collins, Colorado   |

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## FRESHMAN CLASS.

|                           |                        |
|---------------------------|------------------------|
| Merlin H. Aylesworth..... | Fort Collins, Colorado |
| Warren J. Bristol.....    | Fort Collins, Colorado |
| Ralph F. Bristol.....     | Fort Collins, Colorado |
| Isaiah L. Bailey.....     | Fort Collins, Colorado |
| William J. Ball.....      | Fort Lupton, Colorado  |
| Lewis L. Bonnett.....     | Fort Collins, Colorado |
| James Barry.....          | Fort Collins, Colorado |
| Bertha V. Covington.....  | Fort Collins, Colorado |
| James P. Counter.....     | Wray, Colorado         |
| Charles W. Carpenter..... | Denver, Colorado       |
| Clara L. Carver.....      | Castle Rock, Colorado  |
| Clara M. Dailey.....      | Fort Collins, Colorado |
| Harry Drath.....          | Fort Collins, Colorado |
| Edwin W. Dougherty.....   | Fort Collins, Colorado |

|                           |                            |
|---------------------------|----------------------------|
| Josiah L. Dibble.....     | Denver, Colorado           |
| Myrtle Dougherty.....     | Fort Collins, Colorado     |
| Thomas F. Fitch.....      | St. Cloud, Minnesota       |
| Robert K. Fuller.....     | Fort Collins, Colorado     |
| Hart B. Fleshman.....     | Kansas City, Missouri      |
| Edna E. Garbutt.....      | Fort Collins, Colorado     |
| William Gray.....         | Denver, Colorado           |
| Earl E. Goodwin.....      | Fort Collins, Colorado     |
| Ivan Hiatt.....           | Canon City, Colorado       |
| Jesse H. Havens.....      | Fort Collins, Colorado     |
| Frank P. Hall.....        | Snyder, Colorado           |
| Myrtle G. Hoffman.....    | Fort Collins, Colorado     |
| Horace V. Hubbell.....    | Berthoud, Colorado         |
| Emma E. Kiskey.....       | Fort Collins, Colorado     |
| Lynn N. Kennedy.....      | Grand Junction, Colorado   |
| Almon N. Lyons.....       | Fort Collins, Colorado     |
| Arthur E. Lamb.....       | Fort Collins, Colorado     |
| Frank R. Lamb.....        | Hillside, Colorado         |
| Attie D. Moore.....       | Fort Collins, Colorado     |
| George L. McRay.....      | Canon City, Colorado       |
| Frank C. Miller.....      | Fort Collins, Colorado     |
| Arthur W. Moorehouse..... | Lamar, Colorado            |
| Jessie F. Mills.....      | Fort Collins, Colorado     |
| William J. Morgan.....    | Aledo, Illinois            |
| Edward C. Neff.....       | Greeley, Colorado          |
| Ernest I. Newsom.....     | Parker, Colorado           |
| Daisy E. Oldfield.....    | Fort Collins, Colorado     |
| Clarence L. Olson.....    | Cripple Creek, Colorado    |
| Wilton L. Putnam.....     | Orchard, Colorado          |
| Hervey J. Phelps.....     | Fowler, Colorado           |
| Earle P. Riddell.....     | Denver, Colorado           |
| Harvey Riddell.....       | Denver, Colorado           |
| James H. Riddell.....     | Denver, Colorado           |
| William F. Rosenberg..... | Glenwood Springs, Colorado |
| Hubert P. Ricketts.....   | Fort Collins, Colorado     |
| Robert C. Swallow.....    | Denver, Colorado           |
| Willis Stidger.....       | Fort Collins, Colorado     |
| Paul V. Songer.....       | Edgewater, Colorado        |
| Ray C. Spitzer.....       | Fort Collins, Colorado     |
| Bert A. Snow.....         | Canon City, Colorado       |

|                          |                          |
|--------------------------|--------------------------|
| Lois Silcott.....        | Fort Collins, Colorado   |
| Clarence E. Shaffer..... | Fort Collins, Colorado   |
| George B. Stone.....     | Providence, Rhode Island |
| Louis H. Thayer.....     | Tinmath, Colorado        |
| Ernest W. Thayer.....    | Tinmath, Colorado        |
| Anna A. Thorborg.....    | Eagle, Colorado          |
| George K. Thomson.....   | Fort Collins, Colorado   |
| William H. Trimble.....  | Fort Collins, Colorado   |
| Carl C. Veasey.....      | Fort Collins, Colorado   |
| William J. Westfall..... | Rocky Ford, Colorado     |
| Arthur W. Webster.....   | Mena, Arkansas           |
| Maud Walker.....         | Fort Collins, Colorado   |

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## SUB-FRESHMAN CLASS.

|                            |                         |
|----------------------------|-------------------------|
| Frank W. Acker.....        | Canon City, Colorado    |
| George F. Adams.....       | Greeley, Colorado       |
| Victor H. Akin.....        | Fort Collins, Colorado  |
| Blanche E. Allen.....      | Fort Collins, Colorado  |
| Arthur Anderson.....       | Kokomo, Colorado        |
| Thomas W. Ayres.....       | Mesa, Colorado          |
| Victor E. Blanton.....     | Valmont, Colorado       |
| William J. Bell.....       | Americus, Kansas        |
| Walter Budington.....      | Highland Lake, Colorado |
| Frank J. Brown.....        | Fort Collins, Colorado  |
| Newton L. Brooks.....      | Winchester, Iowa        |
| Herbert L. Brink.....      | Mesa, Colorado          |
| Chris N. Block.....        | Sanford, Colorado       |
| Ellen E. Bell.....         | Fort Collins, Colorado  |
| Charles Berryman.....      | Leadville, Colorado     |
| Guy A. Blackmer.....       | Fort Collins, Colorado  |
| Curtis S. Blake.....       | White Rock, Utah        |
| Alfred A. Boothroyd.....   | Arkins, Colorado        |
| William E. Broadhurst..... | Tie Siding, Wyoming     |
| Clara L. Balzer.....       | Hagar, Oklahoma         |
| Benjamin T. Counter.....   | Wray, Colorado          |
| James A. Consigney.....    | Boulder, Colorado       |
| William T. Carver.....     | Castle Rock, Colorado   |
| Andrew B. Crafts.....      | Fort Collins, Colorado  |

|                            |                            |
|----------------------------|----------------------------|
| Meta A. Covington.....     | Fort Collins, Colorado     |
| Carl C. Christman.....     | Virginia Dale, Colorado    |
| Hervey A. Cole.....        | Longmont, Colorado         |
| Helen Cuthbertson.....     | Fort Collins, Colorado     |
| Paul Cleave.....           | Estes Park, Colorado       |
| Virginia Cleave.....       | Estes Park, Colorado       |
| Edward S. Dalton.....      | Manassa, Colorado          |
| Tina Damm.....             | Fort Collins, Colorado     |
| Ernest B. Davis.....       | Denver, Colorado           |
| Clyde C. Douglass.....     | Goodland, Kansas           |
| Joseph I. Durrant.....     | Lamar, Colorado            |
| Arthur E. Evans.....       | Rockwood, Colorado         |
| Lena Early.....            | Chicago, Illinois          |
| George W. Echols.....      | Manassa, Colorado          |
| Elisha J. Falloon.....     | Laporte, Colorado          |
| Aaron Fagerberg.....       | Greeley, Colorado          |
| Hugo E. Frey.....          | Fort Collins, Colorado     |
| Ida O. Gilkison.....       | Fort Collins, Colorado     |
| William J. Gibbs.....      | Denver, Colorado           |
| John C. Gair.....          | Bland, Colorado            |
| Walter R. Gordon.....      | Hanover, Indiana           |
| Earl C. Hodges.....        | Fort Collins, Colorado     |
| Arthur L. Horn.....        | McCoy, Colorado            |
| J. D. Holden.....          | Colorado Springs, Colorado |
| Edgar Hull.....            | Elbert, Colorado           |
| Henson L. Heiselt.....     | Sanford, Colorado          |
| Christopher M. Haynie..... | Manassa, Colorado          |
| Bessie E. Hilliard.....    | Fort Collins, Colorado     |
| Charles A. Higdon.....     | Canon City, Colorado       |
| Orrin R. Hewitt.....       | Colorado Springs, Colorado |
| Amanda A. Henning.....     | Fort Collins, Colorado     |
| Henderson L. Heckart.....  | Virginia Dale, Colorado    |
| Chester G. Harris.....     | Fort Collins, Colorado     |
| Herman O. Hanson.....      | Cripple Creek, Colorado    |
| Paul C. Hanson.....        | Cripple Creek, Colorado    |
| Edward R. Harper.....      | Salida, Colorado           |
| Sylvia Hewitt.....         | Colorado Springs, Colorado |
| James A. Johnson.....      | Rawlins, Wyoming           |
| Rilla B. Jenkins.....      | Lansing, Colorado          |
| Thomas H. Jones.....       | Fort Collins, Colorado     |

|                          |                            |
|--------------------------|----------------------------|
| Coy E. Clingler.....     | Grand Junction, Colorado   |
| Amelia E. Kelly.....     | Fort Collins, Colorado     |
| Patrick H. Kelly.....    | Flagler, Colorado          |
| Frederick A. Kemper..... | Fort Collins, Colorado     |
| John P. Killgore.....    | Fort Collins, Colorado     |
| Luey Kirby.....          | Fort Collins, Colorado     |
| Clark E. Krickbaum.....  | Fort Collins, Colorado     |
| Thomas Keel.....         | Manassa, Colorado          |
| Oliver W. Ketner.....    | Golden, Colorado           |
| Arthur W. Lambert.....   | Fort Collins, Colorado     |
| Grace Littlefield.....   | Fort Collins, Colorado     |
| William Lewis.....       | Mexico, Missouri           |
| Warren J. Moore.....     | Denver, Colorado           |
| Vincent V. Moore.....    | Lansing, Colorado          |
| Edith E. McGowan.....    | Fort Collins, Colorado     |
| John T. McOrmond.....    | Kokomo, Colorado           |
| Mary I. Mahoney.....     | Fort Collins, Colorado     |
| Bertha Marvin.....       | Canon City, Colorado       |
| Earl D. Miner.....       | Fort Collins, Colorado     |
| Stella C. Mosman.....    | Fort Collins, Colorado     |
| Robert C. Mulnix.....    | Denver, Colorado           |
| Walter B. McKibben.....  | Brush, Colorado            |
| Lewis M. Montgomery..... | Arriba, Colorado           |
| Paul McCreery.....       | Greeley, Colorado          |
| Grace A. McGuire.....    | Oswego, Kansas             |
| Edith E. McCracken.....  | Colorado Springs, Colorado |
| Roy W. Nye.....          | Fort Collins, Colorado     |
| Clyde W. Norvell.....    | Fort Collins, Colorado     |
| James A. Nelson.....     | Fort Collins, Colorado     |
| Emily J. Nelson.....     | Hooper, Nebraska           |
| Bessie M. Oldfield.....  | Fort Collins, Colorado     |
| George L. Osgbury.....   | Cherrellyn, Colorado       |
| Clarence O. Palmer.....  | Denver, Colorado           |
| Edwin K. Price.....      | Grand Junction, Colorado   |
| George L. Penley.....    | Sedalia, Colorado          |
| Robert W. Quillian.....  | Gardner, Colorado          |
| Grace W. Richards.....   | Fort Collins, Colorado     |
| William Riddock.....     | Fountain, Colorado         |
| Henry L. Roberts.....    | Idaho Springs, Colorado    |
| George F. Robran.....    | Del Norte, Colorado        |



|                          |                          |
|--------------------------|--------------------------|
| Felix Roullard.....      | Fort Collins, Colorado   |
| William N. Reynolds..... | Manassa, Colorado        |
| Warren H. Russell.....   | Fort Collins, Colorado   |
| Roy R. Sissac.....       | Mesa, Colorado           |
| Renna Sissac.....        | Mesa, Colorado           |
| George R. Salisbury..... | Slater, Colorado         |
| Fred Schueler.....       | Georgetown, Colorado     |
| Kenus R. Sowards.....    | Manassa, Colorado        |
| Albert E. Sullivan.....  | Salida, Colorado         |
| Frank B. Skinner.....    | Denver, Colorado         |
| Edward Southward.....    | Norwood, Colorado        |
| Berry P. Sloan.....      | Livermore, Colorado      |
| Rolly Shipley.....       | Fort Collins, Colorado   |
| Lawrence G. Storm.....   | Canon City, Colorado     |
| Florence B. Storm.....   | Canon City, Colorado     |
| William A. Tyler.....    | Fort Collins, Colorado   |
| Lottie M. Tuttle.....    | Boulder, Colorado        |
| Clyde Tinney.....        | Rocky Ford, Colorado     |
| James D. Worsham.....    | Colorado City, Colorado  |
| Thomas H. Wold.....      | Washburn, Wisconsin      |
| Walter E. Witcher.....   | Guffey, Colorado         |
| Scott Wisner.....        | Omega, Nebraska          |
| Frank R. Williams.....   | Livermore, Colorado      |
| Buell L. White.....      | Eaton, Colorado          |
| James L. Wentz.....      | Pagosa Springs, Colorado |
| Mamie Welch.....         | Fort Collins, Colorado   |

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## SENIOR COMMERCIAL CLASS.

|                           |                          |
|---------------------------|--------------------------|
| Albert E. Baylis.....     | Grand Junction, Colorado |
| Annie C. Beach.....       | Fort Collins, Colorado   |
| Maud E. Benson.....       | New Windsor, Colorado    |
| Barton G. D. Bishopp..... | Virginia Dale, Colorado  |
| Clara Barry.....          | Fort Collins, Colorado   |
| Horace M. Cattell.....    | Fort Collins, Colorado   |
| Emma L. Case.....         | Fort Collins, Colorado   |
| Morris E. Fliniau.....    | Fort Collins, Colorado   |
| Lena M. Gilkison.....     | Fort Collins, Colorado   |
| George Richardson.....    | Fort Collins, Colorado   |

|                            |                        |
|----------------------------|------------------------|
| Fern A. V. Reeves.....     | Fort Collins, Colorado |
| Florence M. Roller.....    | Fort Collins, Colorado |
| Delano F. Scott.....       | Fort Collins, Colorado |
| Edith L. Stauffacher.....  | Catherin, Colorado     |
| Charles H. Sisson.....     | Wray, Colorado         |
| Irwin Sisson.....          | Wray, Colorado         |
| George F. Schattinger..... | Jefferson, Colorado    |
| Richard W. Tanner.....     | Florence, Colorado     |
| William C. Woods.....      | Farmington, New Mexico |
| Claude J. Wilson.....      | Meeker, Colorado       |
| Howard W. Wester.....      | Longmont, Colorado     |

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## JUNIOR COMMERCIAL CLASS.

|                          |                         |
|--------------------------|-------------------------|
| Cassius A. Akey.....     | Vernon, Colorado        |
| Sidney G. Arscott.....   | Fort Collins, Colorado  |
| Anna F. Brose.....       | Fort Collins, Colorado  |
| Ray Baxter.....          | Fort Collins, Colorado  |
| Stella L. Bell.....      | Fort Collins, Colorado  |
| Almon N. Blackmer.....   | Fort Collins, Colorado  |
| Gladys E. Blanchard..... | Fort Collins, Colorado  |
| Julia Blanchard.....     | Fort Collins, Colorado  |
| Elsa Bristol.....        | Fort Collins, Colorado  |
| Ezra K. Baer.....        | Meeker, Colorado        |
| John Bald.....           | Coal Creek, Colorado    |
| Minnie E. Balmer.....    | Monmouth, Illinois      |
| Edith A. Beers.....      | Fort Collins, Colorado  |
| Julia A. Crary.....      | Union, Iowa             |
| Perry D. Cunningham..... | Wray, Colorado          |
| John H. Cunningham.....  | Loveland, Colorado      |
| Eva S. Calvert.....      | Dixon, Wyoming          |
| Glenn Carhart.....       | Thompsonville, Kansas   |
| Clarence W. Candlin..... | Greeley, Colorado       |
| Jennie M. Clark.....     | Monte Vista, Colorado   |
| Lida Decker.....         | Fort Collins, Colorado  |
| Helen K. Devers.....     | Fort Collins, Colorado  |
| Phil Dale.....           | Greeley, Colorado       |
| Frederic S. Fobes.....   | Virginia Dale, Colorado |
| Anna G. Fobes.....       | Virginia Dale, Colorado |

|                            |                          |
|----------------------------|--------------------------|
| Calvin Goodrich.....       | Fort Collins, Colorado   |
| Henry M. Giller.....       | White Hall, Illinois     |
| Marshall A. Graham.....    | Grand Junction, Colorado |
| William E. Graham.....     | Grand Junction, Colorado |
| James Harris.....          | Longmont, Colorado       |
| William A. Harris.....     | Basalt, Colorado         |
| Alva A. Hawley.....        | Fort Collins, Colorado   |
| Nellie Herring.....        | Laporte, Colorado        |
| Roy Hiatt.....             | Canon City, Colorado     |
| Hervey D. Hubbell.....     | Berthoud, Colorado       |
| Myrtle E. Huston.....      | Fort Collins, Colorado   |
| Emily A. Jacobs.....       | Fort Collins, Colorado   |
| L. Virginia Moore.....     | Boulder, Colorado        |
| Clyde McIntyre.....        | Fort Collins, Colorado   |
| Alexander McNeil.....      | Denver, Colorado         |
| Lewis E. Martin.....       | Fort Collins, Colorado   |
| Mary E. Metcalfe.....      | Fort Collins, Colorado   |
| Gilbert R. Miller.....     | Fort Collins, Colorado   |
| Enoch J. Mills.....        | Linton, Kansas           |
| Arthur R. Moser.....       | Cripple Creek, Colorado  |
| Maud Mundell.....          | La Junta, Colorado       |
| William E. O'Laughlin..... | Pruden, Colorado         |
| Claude M. Pearce.....      | Humansville, Missouri    |
| James B. Porter.....       | Manzanola, Colorado      |
| John J. Prendergast.....   | Fort Collins, Colorado   |
| Katharyn C. Peebles.....   | Carlinville, Illinois    |
| Mabel Ricketts.....        | Fort Collins, Colorado   |
| Joy Ricketts.....          | Fort Collins, Colorado   |
| Ada L. Showers.....        | Fort Collins, Colorado   |
| Otto R. Showers.....       | Fort Collins, Colorado   |
| Oro W. Spensley.....       | Tin Cup, Colorado        |
| Frank A. Slayton.....      | Carr, Colorado           |
| Ambroise L. Sherbino.....  | Ridgway, Colorado        |
| Edward M. Seeley.....      | Mosca, Colorado          |
| Harry C. Strong.....       | Parker, Colorado         |
| Howard Tubbs.....          | Fort Collins, Colorado   |
| Nora Thompson.....         | Fort Collins, Colorado   |
| Edythe M. Tatman.....      | Pine Bluffs, Wyoming     |
| Laura G. Wirt.....         | Fort Collins, Colorado   |
| Royal R. White.....        | Pagosa Springs, Colorado |

|                    |                        |
|--------------------|------------------------|
| Harry E. West..... | Trinidad, Colorado     |
| Mellie Wagye.....  | Fort Collins, Colorado |
| Roy Zobel.....     | Leadville, Colorado    |
| Nora Zenor.....    | Fort Collins, Colorado |

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## SPECIAL STUDENTS.

|                            |                         |
|----------------------------|-------------------------|
| Oscar C. Almblade.....     | Longbeach, Washington   |
| Henry H. Ball.....         | Oklahoma City, Oklahoma |
| Ralph W. Bradley.....      | Rock Rapids, Iowa       |
| Robert A. Brown.....       | Rico, Colorado          |
| Elizabeth J. Budrow.....   | Fort Collins, Colorado  |
| Bertha M. Butler.....      | Norwalk, Ohio           |
| Love C. Buttorff.....      | Fort Collins, Colorado  |
| Edith G. Boothroyd.....    | Arkins, Colorado        |
| Gardner R. Cushing.....    | Fort Collins, Colorado  |
| Floyd Curfman.....         | Denver, Colorado        |
| Lawrence J. Cronin.....    | Kokomo, Colorado        |
| Ernest C. Calkins.....     | Longmont, Colorado      |
| James N. Clark.....        | Leadville, Colorado     |
| Albertina Christensen..... | Fort Collins, Colorado  |
| Leo M. Cherry.....         | Livermore, Colorado     |
| Lillian M. Early.....      | Chicago, Illinois       |
| Bertha Early.....          | Chicago, Illinois       |
| Joy Faulkner.....          | Fort Collins, Colorado  |
| Alice G. Gant.....         | Fort Collins, Colorado  |
| Lillian Hoffman.....       | Fort Collins, Colorado  |
| Helen P. Headden.....      | Fort Collins, Colorado  |
| Martha M. Irwin.....       | Mt. Ayr, Colorado       |
| Mabel E. Lumry.....        | Fort Collins, Colorado  |
| S. W. Mace.....            | Horner, West Virginia   |
| Margarette Norvell.....    | Fort Collins, Colorado  |
| Arthur G. Newell.....      | Wray, Colorado          |
| Grace Neff.....            | Greeley, Colorado       |
| Ritchie Quick.....         | Fort Collins, Colorado  |
| Alfred T. Riley.....       | Meeker, Colorado        |
| Grace A. Smith.....        | Fort Collins, Colorado  |
| Myrtle E. Shires.....      | Bassett, Iowa           |
| Etta Shires.....           | Bassett, Iowa           |

|                             |                         |
|-----------------------------|-------------------------|
| Cornelia L. Somerville..... | Mitchells, Pennsylvania |
| Robert D. Sharp.....        | Denver, Colorado        |
| Thomas D. Southward.....    | Norwood, Colorado       |
| Emma Storm.....             | Canon City, Colorado    |
| Frank Shaw.....             | Denver, Colorado        |
| Carlton C. Tinkham.....     | Loveland, Colorado      |
| Guy Tefft.....              | Ophir, Colorado         |
| Jennie Welch.....           | Fort Collins, Colorado  |
| Arthur Williams.....        | Denver, Colorado        |

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## SUMMARY.

|                                | Male. | Female. | Total. |
|--------------------------------|-------|---------|--------|
| Postgraduate .....             | 6     | 0       | 6      |
| Seniors .....                  | 18    | 8       | 26     |
| Juniors .....                  | 25    | 7       | 32     |
| Sophomores .....               | 39    | 18      | 57     |
| Freshman .....                 | 56    | 10      | 66     |
| Sub-Freshman .....             | 102   | 28      | 130    |
| Commercial Course—Seniors..... | 13    | 8       | 21     |
| Commercial Course—Juniors..... | 41    | 28      | 69     |
| Special Students.....          | 19    | 22      | 41     |
| Total.....                     | 319   | 129     | 448    |



## GRADUATES.

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- Albert M. Ten Eyck, M.S., 1897 (B.Agr. University of Wisconsin, 1893) Assistant Agriculturist, State Agricultural College, ..... Fargo, North Dakota
- Carl H. Potter, M.S., 1899 (B.S. University of Wisconsin, 1892), Assistant in Horticulture and Botany, Agricultural College of Colorado, 1899-1901, Horticulturist; deceased, 1902.

—2

### 1884.

- George H. Glover, B.S. (D.V.M., Iowa Agricultural College), Professor of Veterinary Science, Agricultural College of Colorado.....Fort Collins, Colorado
- Elizabeth Coy, B.S. (Mrs. James W. Lawrence).Fort Collins, Colorado
- Leonidas Loomis, B.S., Stockman.....Fort Collins, Colorado

—3

### 1885.

- Cora Bell Blinn, B.S.....Rocky Ford, Colorado
- Edna L. Hice, B.S.....Fort Collins, Colorado
- Lelia L. Loomis, B.S. (Mrs. T. H. Robertson) ..Fort Collins, Colorado
- Grace Espy Patton, B.S. (M.S., 1897) (Mrs. W. H. Cowles), Professor of English and Philosophy, Agricultural College of Colorado, 1885-1897; State Superintendent of Public Instruction of Colorado, 1897-1899; Journalist.....
- .....Manila, Philippine Islands
- Robert E. Trimble, B.S., Assistant Meteorologist and Irrigation Engineer, Experiment Station, Agricultural College of Colorado.....Fort Collins, Colorado
- Helen White, B.S. (Mrs. John Rigden).....Timnath, Colorado

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1886.

Wilbert J. Sickman, B.S., Clerk of the District Court of Larimer County, Colorado, until 1896; deceased.

—1

1887.

Eleanor F. Gill, B.S., (Mrs. William Frazer) ..Black Hawk, Colorado  
Marguerite E. Stratton, B.S., Librarian Agricultural College of Colorado, 1895-1901; deceased, 1901.

Lerah G. Stratton, B.S., (Mrs. P. J. McHugh), Librarian Agricultural College of Colorado, 1887-1891...Fort Collins, Colorado

Edwin G. Nettleton, B.S., Assistant Engineer, Bear River Canal, Utah, 1891-1892; Assistant Engineer Sonora and Sinaloa Canal, Mexico, 1893; deceased.

—4

1888.

Lewis A. Coffin, B.S., Assistant Chemist, Agricultural College of Colorado, 1888-1889; Farmer.....Longmont, Colorado

Harvey H. Griffin, B.S., Superintendent San Luis Branch Experiment Station, 1889-1892; Superintendent New Mexico Experiment Station, Aztec, 1892-1897; Superintendent Arkansas Valley Sub-Station.....Rocky Ford, Colorado

Josephine Lee, B.S., Teacher, City Schools.....Boulder, Colorado

Jennie E. McLain, B.S. (Mrs. H. R. Corbett), Professor of History and Geography, State Normal School, Peru, Nebraska, 1891-1897; Professor of History and Literature, Agricultural College of Colorado, 1897-1900.....Chicago, Illinois

—4

1889.

Lucy Bell, B.S. (Mrs. C. V. Benson).....Loveland, Colorado

Arthur L. Davis, B.S. (M.D., 1895, Gross Medical College, Denver), Graduate Eye, Ear, Nose and Throat Medical College of Chicago, 1900; Physician.....Durango, Colorado

—2

1890.

- Clarence V. Benson, B.S. (LL.B., University of Michigan, 1892; M. S., Agricultural College of Colorado, 1896); Secretary Board of Education of Loveland since 1897; City Attorney of Loveland, 1893-1895; Cashier Bank of Loveland..... Loveland, Colorado
- Velma V. Benson, B.S., (Mrs. A. Beebe).....Fort Collins, Colorado
- Burt C. Buffum, B.S. (M.S., 1893), Professor of Agriculture and Horticulture, University of Wyoming, 1891-1900; Professor of Agriculture, Agricultural College of Colorado, 1900..... Fort Collins, Colorado
- Charles A. Duncan, B.S., Irrigation Assistant, Agricultural College of South Dakota, 1891; Superintendent San Luis Valley Experiment Station, 1893-1896; Farmer.....Timnath, Colorado
- Newton C. Garbutt, B.S., Attorney-at-Law....Fort Collins, Colorado
- Helen E. Lunn, B.S. (Mrs. T. J. Montgomery)..Fort Collins, Colorado
- Harry R. Temple, B.S., Engineer, Boulder Flour Mill and Elevator Company.....Boulder, Colorado
- Cora B. Thoman, B.S. (Mrs. Clarence Jarbeau), Principal Preparatory Department, Agricultural College of Colorado, 1897-1898 .....Georgetown, Colorado
- Mary L. Weaver, B.S. (Ph.B., Ohio State University) ..... 231 Church street, Urbana, Ohio
- 9

1891.

- John S. Calkins, B.S., Farmer and Stockman.....Harris, Colorado
- Charles R. Evans, B.S., Stockman and Fruit Grower..... Fort Collins, Colorado
- Minnie E. McLail, B.S.....Fort Collins, Colorado
- 3

1892.

- Charles W. Beach, B.S. (B.S., University of Illinois, 1894), Assistant Engineer, Great Plains Storage and Irrigation Company.....Las Animas, Colorado
- Frank Beach, B.S. (M.S., 1896), Superintendent San Luis Valley Experiment Station, 1893-1895; Superintendent New Mexico Branch Experiment Station, Las Vegas, 1895-1896; Professor of Agriculture and Irrigation Engineering, Montana State Agricultural College, 1896-1898; Farmer and Stockman.... Las Animas, Colorado

Alice Bell, B.S., (Mrs. S. L. Boothroyd) .....Arkins, Colorado  
 Samuel Bell, B.S. (M.D., University of Denver, 1896), Resident  
 Physician St. Luke's Hospital, 1897; Physician.Meecker, Colorado  
 Don A. Carpenter, B.S., Manager, Mining Department of the New  
 York Office of Edw. P. Allen & Company, 1900-1901; South-  
 western Manager Sullivan Manufacturing Company.....  
 .....El Paso, Texas  
 Porter J. Preston, B.S., Assistant State Engineer of Colorado,  
 1893-1896; Assistant Engineer Great Plains Storage and Ir-  
 rigation Company; Superintendent Fort Lyons Canal.....  
 .....Las Animas, Colorado  
 Albert J. Sedgwick, B.S.....South Bend, Indiana  
 Lewis L. Stimson, B.S., City Engineer Greeley, 1897-1899;  
 County Surveyor Weld County.....Greeley, Colorado  
 Frank H. Thompson, B.S., Stenographer President's Office, and  
 Manager Text-Book Department Agricultural College of Col-  
 orado.....Fort Collins, Colorado

—9

1893.

John D. Bloomfield, B.S., Superintendent and Manager Phillis  
 Canal; Engineer.....Nampa, Idaho  
 Samuel L. Boothroyd, B.S., Professor of Astronomy and Mathe-  
 matics, Mount Morris College, Illinois, 1893-1897; Assistant  
 Astronomer, Lowell Observatory, Flagstaff, Arizona, 1897-  
 1899; Professor of Mathematics Bellvue College, 1899-1901;  
 Stockman.....Arkins, Colorado  
 Ida M. Lewis, B.S., (Mrs. J. T. Douglas) ; deceased, 1894.  
 Charles J. Gilkison, B.S., Principal Commercial Department Ag-  
 ricultural College of Colorado.....Fort Collins, Colorado  
 William J. Ralph, B.S., Deputy Postmaster...Fort Collins, Colorado .  
 Raymond F. Walter, B.S., County Surveyor of Weld County,  
 1897-1901; Engineer of Greeley; Deputy State Engineer....  
 .....Greeley, Colorado  
 William W. Willard, B.S., Merchant.....Twin Lakes, Colorado

—7

1894.

Philo K. Blinn, B.S., Superintendent Arkansas Valley Sub-Sta-  
 tion, 1895-1897; Secretary Otero County Horticultural So-  
 ciety; Farmer and Horticulturist.....Rocky Ford, Colorado

- Jacob H. Cowen, B.S. (B.Agr. Cornell University, 1899) ; Assistant Botanist and Horticulturist, Agricultural College of Colorado, 1895-1898 ; Professor of Botany and Horticulture, Agricultural College of Colorado, 1900 ; deceased, 1900.
- Will H. Fairfield, B.S. (M.S., 1898), Farm Superintendent, University of Wyoming, 1897-1901 ; Experimentalist Canadian-Northwest Irrigation Company....Lethbridge, Alberta, Canada
- Minnie F. Harrington, B.S. (Mrs. W. F. Gilkison).Laramie, Wyoming
- Herbert S. Kendall, B.S., Superintendent of Experiment Station, Lander, Wyoming, 1894-1896.....Denver, Colorado
- Celia May Southworth, B.S. (Mrs. Frank Beach), Librarian Agricultural College of Colorado, 1891-1895..Las Animas, Colorado
- Harlan Thomas, B.S., Member State Board of Agriculture of Colorado, 1899 ; Member Board of Education and Mayor of Montclair ; Architect....511 McPhee Building, Denver, Colorado

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## 1895.

- Jean B. Balcomb, B.S., United States Deputy Mineral Surveyor ; Engineer and Assayer, Silver Ledge Mine, Silverton ; Constructing Engineer, North Star Gold Mining Company ; Engineer..... San Francisco, California
- Herbert A. Black, B.S., Secretary Miller-Black Lumber Company, 1900-1901.....Eaton, Colorado
- Edith G. Boothroyd, B.S., Teacher.....Arkins, Colorado
- Henry A. Calkins, B.S. (M.D., Denver College of Medicine, 1901), Physician .....Denver, Colorado
- Edward P. Cooke, B.S., Money Clerk, United States and Pacific Express Companies.....Des Moines, Iowa
- Loren B. Curtis, B.S., Assistant Constructing Engineer for Denver Tramway Company.....Denver, Colorado
- William F. Gilkison, B.S. (M.E., 1898), Professor of Mechanical Engineering, University of Wyoming.....Laramie, Wyoming
- Ella G. Goldsborough, B.S. (Mrs. E. C. Reed) ..Fort Collins, Colorado
- Seth C. Lewis, B.S., Farmer.....Timnath, Colorado
- Edgar A. Mead, B.S., Farmer.....Greeley, Colorado
- George W. Nelson, B.S., Assistant Superintendent, Olive Mining Company.....Grand Forks, British Columbia
- Frances C. Schelt, B.S., Teacher.....Loveland, Colorado
- Walter K. Starbird, B.S., Stockman.....Ault, Colorado

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1896.

- Fred Alford, B.S., Assistant Chemist, Agricultural College of Colorado.....Fort Collins, Colorado
- Henry F. Alps, B.S., Observer United States Weather Bureau..  
.....Lewiston, Idaho
- William E. Becker, B.S., Letter Carrier.....Dowagiac, Michigan
- Florence J. Boothroyd, B.S., Nurse.....Arkins, Colorado
- Alfred H. Bungardt, B.S. (M.D., 1900, University Medical College, Kansas City), Chief of Staff of University Medical College.....205 Hall Building, Kansas City, Missouri
- Allen P. Greenacre, B.S., Instructor, Department of Mechanical Engineering, Agricultural College of Colorado.....  
.....Fort Collins, Colorado
- Robinson W. Hawley, B.S., Assistant in Field Investigations of Experiment Station, 1899-1900; Assistant in State Engineer's Office, 1900; Civil Engineer on Oregon Short Line....  
.....Robinson, Utah
- John E. Kiteley, B.S., Assistant Chemist, Agricultural College of Colorado, 1896-1898; Farmer.....Longmont, Colorado
- Richard A. Maxfield, B.S., Sergeant United States Volunteer Engineer Corps, Spanish-American War, 1898-1899; Professor of Military Science and Tactics, Agricultural College of Colorado.....Fort Collins, Colorado
- Abner S. McKee, B.S., Assayer.1727 Champa street, Denver, Colorado
- Grafton S. Norman, B.S., Second Lieutenant United States Volunteer Infantry, 1898-1899; Instructor in Mathematics and Natural Sciences, Blue Grass Normal and Industrial Institute .....Keene, Kentucky
- Robert W. Sears, B.S., Stockman.....Fowler, Colorado

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1897.

- May A. Dievendorf, B.S. (Mrs. Frank Miller)..Fort Collins, Colorado
- Bertram A. Gage, B.S., Assistant Cashier, Fort Collins National Bank.....Fort Collins, Colorado
- Martha R. Gilkison, B.S. (Mrs. Frank Woods).Fort Collins, Colorado
- Robert S. Gray, B.S., Surveyor.....Wheatland, Wyoming
- Archie J. Harris, B.S., First Lieutenant Second United States Infantry.....Manila, Philippine Islands
- Ralph H. Hess, B.S., Instructor, Department of Mathematics, Agricultural College of Colorado.....Fort Collins, Colorado

Alta E. Lewis, B.S., (Mrs. B. H. Bush) . . . . .Livermore, Colorado  
 Smith D. Philip, B.S., Lumber Merchant. . . . .Fort Lupton, Colorado  
 Anna L. Picken, B.S. (Mrs. N. C. Warren) ; deceased, 1901.  
 Mary E. Prendergast, B.S., City Librarian. . . . .Fort Collins, Colorado  
 David J. Richards, B.S., United States Army. . . . .  
 . . . . .Manila, Philippine Islands  
 —11

## 1898.

Emil Affolter, B.S., Farmer. . . . .Longmont, Colorado  
 Herman S. Brown, B.S., Merchant. . . . .Salida, Colorado  
 Raymond C. Calloway, B.S., Farm Foreman, Agricultural Col-  
 lege of Colorado, 1900-1901. . . . .Georgetown, Washington  
 William A. Dickens, B.S., Farmer. . . . .Longmont, Colorado  
 Jesse W. Goodwin, B.S., Electrical Engineer and Machinist. . . . .  
 . . . . .Loveland, Colorado  
 Fred S. Hotchkiss, B.S., Farmer and Engineer. . .Hotchkiss, Colorado  
 Amos Jones, B.S., Engineer Crystal River Railroad, 1898-1899;  
 Assistant Department of Engineering, Agricultural College  
 of Colorado. . . . .Fort Collins, Colorado  
 Herbert C. Matthews, B.S., Machinist. . . . .Wyoming  
 Bernard J. Prendergast, B.S. . . . .Brighton, Colorado  
 Linnie M. Rutledge, B.S.; deceased, 1900.  
 Charles E. Swann, B.S., Assistant Engineer Union Pacific Coal  
 Company. . . . .Rock Springs, Wyoming  
 Melvin D. Williams, B.S., Engineer, West Gallatin Irrigation  
 Company, 1898; Assistant Engineer Pike's Peak Power  
 Company, 1899-1900; Draughtsman, Experiment Station,  
 Agricultural College of Colorado, 1901; Engineer Kuyken-  
 dall-Wilson Development Company. . . . .Saratoga, Wyoming  
 Thomas J. Warren, B.S., Draughtsman, Mine & Smelter Supply  
 Company, Denver, 1900-1901; Draughtsman, Colorado Fuel  
 and Iron Company. . . . .Pueblo, Colorado  
 —13

## 1899.

Lee R. Cooke, B.S., Machinist, Beet Sugar Factory. .Greeley, Colorado  
 Frank Corbin, B.S., Lumber Dealer. . . . .Fort Collins, Colorado  
 Howard E. Emigh, B.S., (M. E., 1901), Employe Oregon Short  
 Line Railroad and Pacific Express Company, Juab, Utah,  
 1900-1901; Employe State Industrial School. . .Golden, Colorado

- Raymond R. Fisk, B.S., Musical Director and Clerk, State Industrial School, Golden, Colorado, 1901; Merchant.....  
 .....Fort Collins, Colorado  
 Newton M. Fitch, B.S., Civil Engineer.....Joplin, Missouri  
 Lewis C. Hall, B.S., City Engineer.....Canon City, Colorado  
 William R. Headden, B.S., Stenographer, Director's Office, Agricultural Experiment Station of Colorado, 1899-1900; Student  
 .....Troy, New York  
 Herman Howard, B.S., Machinist, Union Iron Works, San Francisco, California, 1901; Machinist Southern Pacific Railroad  
 .....Wadsworth, Nevada  
 Addison L. Kellogg, B.S., Engineer, Colorado Springs and Canon City Railroad, Victor, Colorado, 1901; Student of Law....  
 .....Ann Arbor, Michigan  
 William J. Littleton, B.S.....Trinidad, Colorado  
 Charles W. Mayers, B.S., Artesian Well Contractor.....  
 .....Littleton, Colorado  
 Harry C. Miller, B.S., Pharmacist.....Salida, Colorado  
 Jacob C. Mulder, B.S.,.....Philippine Islands  
 Charles S. Newell, B.S., Electrician, Colorado Telephone Company.....202 E. Golden avenue, Cripple Creek, Colorado  
 Marguerite Prendergast, B.S., Instructor in Domestic Science, Colorado Fuel and Iron Company.....Pueblo, Colorado  
 George A. Smith, B.S., Teacher.....Snyder, Colorado  
 James A. Stump, B.S., Instructor, Department of Physics and Engineering, Agricultural College of Colorado.....  
 .....Fort Collins, Colorado  
 Edward S. G. Titus, B.S., Assistant Entomologist, Agricultural Experiment Station, Agricultural College of Colorado, 1900; Assistant State Entomologist.....Urbana, Illinois

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1900.

- Abbie C. Alford, B.S.....Fort Collins, Colorado  
 Laura Armstrong, B.S., (Mrs. E. S. G. Titus).....Urbana, Illinois  
 Clifford S. Atherly, B.S., Letter Carrier.....Fort Collins, Colorado  
 Clara M. Cunningham, B.S.....Fort Collins, Colorado  
 Thomas M. Donelson, B.S., Civil Engineer, Union Pacific System.....Union Stock Yards, Denver, Colorado  
 Earl Douglass, B.S., Assistant Chemist, Agricultural Experiment Station of Colorado.....Fort Collins, Colorado

- Nellie M. Drake, B.S., Student, Armour Institute, Chicago, 1901  
 .....Fort Collins, Colorado  
 Stuart B. Garbutt, B.S., Clerk.....Fort Collins, Colorado  
 Walter P. Hurley, B.S., Employe State Capitol....Denver, Colorado  
 Adolph F. Lindon, B.S., Dairy and Stock Farmer..Haxtum, Colorado  
 Otto W. Lunnon, B.S., Electrical Contractor.....  
 .....0710 Monroe street, Spokane, Washington  
 Roy S. Lumry, B.S., Lineman, Fort Collins Electric Light Com-  
 pany.....Fort Collins, Colorado  
 William F. Marshall, B.S.....Denver, Colorado  
 Ray E. McClave, B.S., Farmer and Stockman....Platteville, Colorado  
 Emmet C. McAnelly, B.S., County Surveyor Larimer County....  
 .....Fort Collins, Colorado  
 Dana Q. McComb, B.S., Teacher, Virginia Dale Schools, 1901-1902  
 .....Dale Creek, Wyoming  
 Harry H. Murray, B.S.; deceased, 1901.  
 Elizabeth A. Nugent, B.S., Teacher.....Laporte, Colorado  
 Robert A. Pierce, B.S.....Fort Collins, Colorado  
 Etta E. Richardson, B.S., Teacher.....Fort Collins, Colorado  
 Ethel M. Smith, B.S.....Fort Collins, Colorado  
 Edwin A. Sutton, B.S.....Goldfield, Colorado  
 Pauline W. Taft, B.S.....Laporte, Colorado  
 Oliver B. Tomlin, B.S., Letter Carrier.....Fort Collins, Colorado  
 Frances M. Warren, B.S. (Mrs. C. J. Gilkison).Fort Collins, Colorado  
 Anna M. Wood, B.S., Stenographer.....Denver, Colorado  
 —26

## 1901.

- James H. Andrews, B.S, Student.....Fort Collins, Colorado  
 Rolland N. Bonnett, B.S., Farmer.....Fort Collins, Colorado  
 Leroy A. Baker, B.S., Farmer.....Fort Collins, Colorado  
 Barton G. D. Bishopp, B.S., Student.....Virginia Dale, Colorado  
 Luther D. Cowan, B.S., Farmer.....Lasalle, Colorado  
 Ralph W. Haynes, B.S., Farmer.....Fort Lupton, Colorado  
 Ross D. Howard, B.S., Instructor in Drawing, Department Me-  
 chanical Engineering, State Agricultural College.....  
 .....Fort Collins, Colorado  
 Royall S. Howlett, B.S., Instructor in Mathematics, State Agri-  
 cultural College.....Fort Collins, Colorado  
 Antonie Jacob, B.S., Engineer Great Plains Co.,....Lamar, Colorado



|                                                                                                                                                                              |                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Cyrus E. McComb, B.S., Telephone Inspector, The Colorado Telephone Company.....                                                                                              | Fort Collins, Colorado |
| Thomas W. Metcalfe, B.S., Stockman.....                                                                                                                                      | Fort Collins, Colorado |
| Bertha M. Newlon, B.S.....                                                                                                                                                   | Nevada, Iowa           |
| Richard R. Parks, B.S., Merchant.....                                                                                                                                        | Denver, Colorado       |
| Frank O. Rasmussen, B.S., Instructor Department Mechanical Engineering, State Agricultural College of Colorado, 1901-1902; Assistant Superintendent the Smuggler Company.... |                        |
| .....                                                                                                                                                                        | Telluride, Colorado    |
| Glynn B. Stannard, B.S., Civil Engineer.....                                                                                                                                 | Redstone, Colorado     |
| Waltgen B. Smith, B.S., On Engineering Corps, Denver & Rio Grande Railway.....                                                                                               | Denver, Colorado       |
| Henry F. Sturdevant, B.S., Student.....                                                                                                                                      | Fort Collins, Colorado |
| Ned V. Tanner, B.S.,.....                                                                                                                                                    | Florence, Colorado     |
| Richard W. Tanner, B.S., Student of Law.....                                                                                                                                 | Florence, Colorado     |
| Oma M. Veazey, B.S.....                                                                                                                                                      | Fort Collins, Colorado |
| John Wilson, B.S., Bank Clerk.....                                                                                                                                           | Eaton, Colorado        |
| —21                                                                                                                                                                          |                        |

## COMMERCIAL COURSE.

1898.

|                                                                                           |                                 |
|-------------------------------------------------------------------------------------------|---------------------------------|
| Charles L. Arnell.....                                                                    | Alamosa, Colorado               |
| Ray J. Baker, Farmer.....                                                                 | Fort Collins, Colorado          |
| William A. Doty, Bookkeeper and Stenographer, Denver City Tramway Company.....            | Mendota Block, Denver, Colorado |
| Frank L. Garnick, Mechanic.....                                                           | Fort Collins, Colorado          |
| Richard E. Hammond, Stenographer.....                                                     | Denver, Colorado                |
| Agnes L. Hawley, Stenographer.....                                                        | Pueblo, Colorado                |
| Pearl Hays, Instructor in Stenography and Typewriting, Kentucky Female Orphan School..... | Midway, Kentucky                |
| Julius P. Olson, Bookkeeper and Clerk.....                                                | Eagle, Colorado                 |
| Inez Smith, Stenographer.....                                                             | Denver, Colorado                |
| Bessie C. Wood, Stenographer, Denver Post.....                                            | Denver, Colorado                |
| —10                                                                                       |                                 |

1899.

|                                                                                                   |                        |
|---------------------------------------------------------------------------------------------------|------------------------|
| Byron K. Baird, United States Revenue Service...                                                  | Honolulu, Hawaii       |
| Charles J. Gilkison, B.S., Principal Commercial Department, Agricultural College of Colorado..... | Fort Collins, Colorado |



- William R. Headden, B.S., Stenographer for Director Agricultural Experiment Station of Colorado, 1899-1907; Engineering Student, Rensselaer Polytechnic Institute.....Troy, New York
- George F. Kern, Stenographer and Bookkeeper.....New Windsor, Colorado
- Lizzie M. Nicholson (Mrs. Hershey).....Denver, Colorado
- Cecil G. Philip, Stockman.....Fort Lupton, Colorado

—6

## 1900.

- Eunice Chatfield, Stenographer, Akin Live Stock Company....Fort Collins, Colorado
- Mary A. Dickerson, Stenographer and Bookkeeper..Denver, Colorado
- James Elliott, Farmer.....Timnath, Colorado
- L. Cale Estes, Student.....Fort Collins, Colorado
- Mary E. Quick.....Fort Collins, Colorado
- Edith Schang, (Mrs. F. C. Wilkes).....Farmington, California
- Emmet O. Smith, Merchant.....Sterling, Colorado
- Pearl Smith (Mrs. Brooks).....Fort Collins, Colorado
- Marion E. Warren, Instructor in Bookkeeping and Stenography, University of Wyoming, 1900-1901; deceased, 1901.

—9

## 1901.

- Cora M. Anderson, Bookkeeper and Stenographer.....Fort Collins, Colorado
- Robert A. Brown, Bookkeeper and Stenographer....Denver, Colorado
- Dudley G. Dwyre, Stenographer, United States Civil Service....Yuma, Arizona
- Spencer Farmer, Merchant.....Fort Collins, Colorado
- Eda H. McCain, Stenographer.....Sawtelle, California
- Henry P. Roberts, Bookkeeper and Stenographer.....Idaho Springs, Colorado
- Edwin W. Smith, Principal Commercial Department, North Denver High School.....Denver, Colorado
- Jennie M. Welch, Stenographer.....Fort Collins, Colorado
- Bernice E. Youngson (Mrs. Amen).....Denver, Colorado

—9

## OFFICERS OF THE ALUMNI ASSOCIATION.

---

|                     |                   |
|---------------------|-------------------|
| President.....      | B. C. Buffum      |
| Vice-President..... | G. H. Glover      |
| Secretary.....      | Mayme Prendergast |
| Treasurer.....      | Jas. A. Stump     |



## CALENDAR OF EXERCISES.

---

1902-1903.

|                                                   |                                         |
|---------------------------------------------------|-----------------------------------------|
| Entrance Examinations.....                        | Monday, September 1, 1902               |
| Registration of Students..                        | Monday and Tuesday, Sept. 1 and 2, 1902 |
| Fall Term Begins.....                             | Wednesday, September 3, 1902            |
| Fall Term Closes.....                             | Friday, November 28, 1902               |
| Winter Term Begins.....                           | Monday, December 1, 1902                |
| Holiday Recess Begins.....                        | Wednesday, December 23, 1902            |
| Holiday Recess Closes.....                        | Monday, January 5, 1903                 |
| Winter Term Closes.....                           | Friday, March 6, 1903                   |
| Spring Term Begins.....                           | Monday, March 9, 1903                   |
| Sermon Before Christian Associations..            | 3 p. m. Sunday, May 31, 1903            |
| Baccalaureate Sermon.....                         | 8 p. m. Sunday, May 31, 1903            |
| Commencement Exercises of Literary Societies..... |                                         |
| .....                                             | 8 p. m. Monday, June 1, 1903            |
| Junior Class Day Exercises.....                   | 8 p. m. Tuesday, June 2, 1903           |
| State Board of Agriculture Meets.....             | Wednesday, June 3, 1903                 |
| Senior Class Exercises.....                       | 10 a. m. Wednesday, June 3, 1903        |
| Alumni Debate.....                                | 8 p. m. Wednesday, June 3, 1903         |
| Commencement Exercises.....                       | Thursday, June 4, 1903                  |
| Reunion of Alumni.....                            | 8 p. m. Thursday, June 4, 1903          |

| 1902 |      |      |       |      |       |      |      | CALENDAR |      |      |       |      |       |      |      | 1902  |      |      |       |      |       |      |      |    |
|------|------|------|-------|------|-------|------|------|----------|------|------|-------|------|-------|------|------|-------|------|------|-------|------|-------|------|------|----|
|      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |          | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |       | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |    |
| Jan. | --   | --   | --    | 1    | 2     | 3    | 4    | May      | --   | --   | --    | --   | 1     | 2    | 3    | Sept. | --   | 1    | 2     | 3    | 4     | 5    | 6    |    |
|      | 5    | 6    | 7     | 8    | 9     | 10   | 11   |          | 4    | 5    | 6     | 7    | 8     | 9    | 10   |       | 7    | 8    | 9     | 10   | 11    | 12   | 13   |    |
|      | 12   | 13   | 14    | 15   | 16    | 17   | 18   |          | 11   | 12   | 13    | 14   | 15    | 16   | 17   |       | 14   | 15   | 16    | 17   | 18    | 19   | 20   |    |
|      | 19   | 20   | 21    | 22   | 23    | 24   | 25   |          | 18   | 19   | 20    | 21   | 22    | 23   | 24   |       | 21   | 22   | 23    | 24   | 25    | 26   | 27   |    |
|      | 26   | 27   | 28    | 29   | 30    | 31   | --   |          | 25   | 26   | 27    | 28   | 29    | 30   | 31   |       | 28   | 29   | 30    | --   | --    | --   | --   |    |
| Feb. | --   | --   | --    | --   | --    | --   | 1    | June     | --   | --   | --    | --   | --    | --   | --   | Oct.  | --   | --   | --    | --   | 1     | 2    | 3    | 4  |
|      | 2    | 3    | 4     | 5    | 6     | 7    | 8    |          | 1    | 2    | 3     | 4    | 5     | 6    | 7    |       | 5    | 6    | 7     | 8    | 9     | 10   | 11   |    |
|      | 9    | 10   | 11    | 12   | 13    | 14   | 15   |          | 8    | 9    | 10    | 11   | 12    | 13   | 14   |       | 12   | 13   | 14    | 15   | 16    | 17   | 18   |    |
|      | 16   | 17   | 18    | 19   | 20    | 21   | 22   |          | 15   | 16   | 17    | 18   | 19    | 20   | 21   |       | 19   | 20   | 21    | 22   | 23    | 24   | 25   |    |
|      | 23   | 24   | 25    | 26   | 27    | 28   | --   |          | 22   | 23   | 24    | 25   | 26    | 27   | 28   |       | 26   | 27   | 28    | 29   | 30    | 31   | --   |    |
| Mar. | --   | --   | --    | --   | --    | --   | 1    | July     | --   | --   | 1     | 2    | 3     | 4    | 5    | Nov.  | --   | --   | --    | --   | --    | --   | 1    |    |
|      | 2    | 3    | 4     | 5    | 6     | 7    | 8    |          | 6    | 7    | 8     | 9    | 10    | 11   | 12   |       | 2    | 3    | 4     | 5    | 6     | 7    | 8    |    |
|      | 9    | 10   | 11    | 12   | 13    | 14   | 15   |          | 13   | 14   | 15    | 16   | 17    | 18   | 19   |       | 9    | 10   | 11    | 12   | 13    | 14   | 15   |    |
|      | 16   | 17   | 18    | 19   | 20    | 21   | 22   |          | 20   | 21   | 22    | 23   | 24    | 25   | 26   |       | 16   | 17   | 18    | 19   | 20    | 21   | 22   |    |
|      | 23   | 24   | 25    | 26   | 27    | 28   | 29   |          | 27   | 28   | 29    | 30   | 31    | --   | --   |       | 23   | 24   | 25    | 26   | 27    | 28   | 29   |    |
|      | 30   | 31   | --    | --   | --    | --   | --   |          | --   | --   | --    | --   | --    | --   | --   |       | 30   | --   | --    | --   | --    | --   | --   |    |
| Apr. | --   | --   | 1     | 2    | 3     | 4    | 5    | Aug.     | --   | --   | --    | --   | --    | 1    | 2    | Dec.  | --   | 1    | 2     | 3    | 4     | 5    | 6    |    |
|      | 6    | 7    | 8     | 9    | 10    | 11   | 12   |          | 3    | 4    | 5     | 6    | 7     | 8    | 9    |       | 7    | 8    | 9     | 10   | 11    | 12   | 13   |    |
|      | 13   | 14   | 15    | 16   | 17    | 18   | 19   |          | 10   | 11   | 12    | 13   | 14    | 15   | 16   |       | 14   | 15   | 16    | 17   | 18    | 19   | 20   |    |
|      | 20   | 21   | 22    | 23   | 24    | 25   | 26   |          | 17   | 18   | 19    | 20   | 21    | 22   | 23   |       | 21   | 22   | 23    | 24   | 25    | 26   | 27   |    |
|      | 27   | 28   | 29    | 30   | --    | --   | --   |          | 24   | 25   | 26    | 27   | 28    | 29   | 30   |       | 28   | 29   | 30    | 31   | --    | --   | --   | -- |
|      | --   | --   | --    | --   | --    | --   | --   |          | 31   | --   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   | --   |    |

| 1903 |      |      |       |      |       |      | CALENDAR |      |      |      |       |      |       | 1903 |      |       |      |      |       |      |       |      |      |
|------|------|------|-------|------|-------|------|----------|------|------|------|-------|------|-------|------|------|-------|------|------|-------|------|-------|------|------|
|      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat.     |      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |       | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |
| Jan. | --   | 4    | 5     | 6    | 7     | 8    | 9        | May  | --   | 3    | 4     | 5    | 6     | 7    | 8    | Sept. | --   | 6    | 7     | 8    | 9     | 10   | 11   |
|      | 11   | 12   | 13    | 14   | 15    | 16   | 17       |      | 10   | 11   | 12    | 13   | 14    | 15   | 16   |       | 13   | 14   | 15    | 16   | 17    | 18   |      |
|      | 18   | 19   | 20    | 21   | 22    | 23   | 24       |      | 17   | 18   | 19    | 20   | 21    | 22   | 23   |       | 20   | 21   | 22    | 23   | 24    | 25   |      |
|      | 25   | 26   | 27    | 28   | 29    | 30   | 31       |      | 24   | 25   | 26    | 27   | 28    | 29   | 30   |       | 27   | 28   | 29    | 30   | --    | --   |      |
|      | --   | --   | --    | --   | --    | --   | --       |      | 31   | --   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   |      |
| Feb. | 1    | 2    | 3     | 4    | 5     | 6    | 7        | June | --   | 1    | 2     | 3    | 4     | 5    | 6    | Oct.  | --   | --   | --    | --   | 1     | 2    | 3    |
|      | 8    | 9    | 10    | 11   | 12    | 13   | 14       |      | 7    | 8    | 9     | 10   | 11    | 12   | 13   |       | 4    | 5    | 6     | 7    | 8     | 9    |      |
|      | 15   | 16   | 17    | 18   | 19    | 20   | 21       |      | 14   | 15   | 16    | 17   | 18    | 19   | 20   |       | 11   | 12   | 13    | 14   | 15    | 16   |      |
|      | 22   | 23   | 24    | 25   | 26    | 27   | 28       |      | 21   | 22   | 23    | 24   | 25    | 26   | 27   |       | 18   | 19   | 20    | 21   | 22    | 23   |      |
|      | --   | --   | --    | --   | --    | --   | --       |      | 28   | 29   | 30    | --   | --    | --   | --   |       | 25   | 26   | 27    | 28   | 29    | 30   |      |
| Mar. | 1    | 2    | 3     | 4    | 5     | 6    | 7        | July | --   | --   | --    | --   | 1     | 2    | 3    | Nov.  | 1    | 2    | 3     | 4    | 5     | 6    |      |
|      | 8    | 9    | 10    | 11   | 12    | 13   | 14       |      | 5    | 6    | 7     | 8    | 9     | 10   | 11   |       | 8    | 9    | 10    | 11   | 12    | 13   |      |
|      | 15   | 16   | 17    | 18   | 19    | 20   | 21       |      | 12   | 13   | 14    | 15   | 16    | 17   | 18   |       | 15   | 16   | 17    | 18   | 19    | 20   |      |
|      | 22   | 23   | 24    | 25   | 26    | 27   | 28       |      | 19   | 20   | 21    | 22   | 23    | 24   | 25   |       | 22   | 23   | 24    | 25   | 26    | 27   |      |
|      | 29   | 30   | 31    | --   | --    | --   | --       |      | 26   | 27   | 28    | 29   | 30    | 31   | --   |       | 29   | 30   | --    | --   | --    | --   |      |
|      | --   | --   | --    | --   | --    | --   | --       |      | --   | --   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   |      |
| Apr. | --   | 5    | 6     | 7    | 8     | 9    | 10       | Aug. | --   | --   | --    | --   | --    | --   | 1    | Dec.  | --   | --   | --    | --   | --    | --   |      |
|      | 12   | 13   | 14    | 15   | 16    | 17   | 18       |      | 2    | 3    | 4     | 5    | 6     | 7    | 8    |       | 6    | 7    | 8     | 9    | 10    | 11   |      |
|      | 19   | 20   | 21    | 22   | 23    | 24   | 25       |      | 9    | 10   | 11    | 12   | 13    | 14   | 15   |       | 13   | 14   | 15    | 16   | 17    | 18   |      |
|      | 26   | 27   | 28    | 29   | 30    | --   | --       |      | 16   | 17   | 18    | 19   | 20    | 21   | 22   |       | 20   | 21   | 22    | 23   | 24    | 25   |      |
|      | --   | --   | --    | --   | --    | --   | --       |      | 23   | 24   | 25    | 26   | 27    | 28   | 29   |       | 27   | 28   | 29    | 30   | 31    | --   |      |
|      | --   | --   | --    | --   | --    | --   | --       |      | 30   | 31   | --    | --   | --    | --   | --   |       | --   | --   | --    | --   | --    | --   |      |

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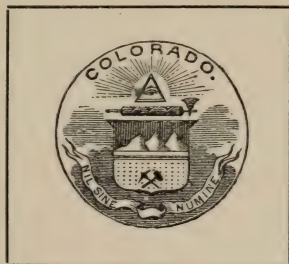




*Twenty - Fourth  
Annual Register  
of the Officers  
and Students of the*

# STATE AGRICULTURAL COLLEGE

*Fort Collins,  
Colorado  
1902 ❁ ❁ 1903*



COURIER PRINT  
Fort Collins, Colorado





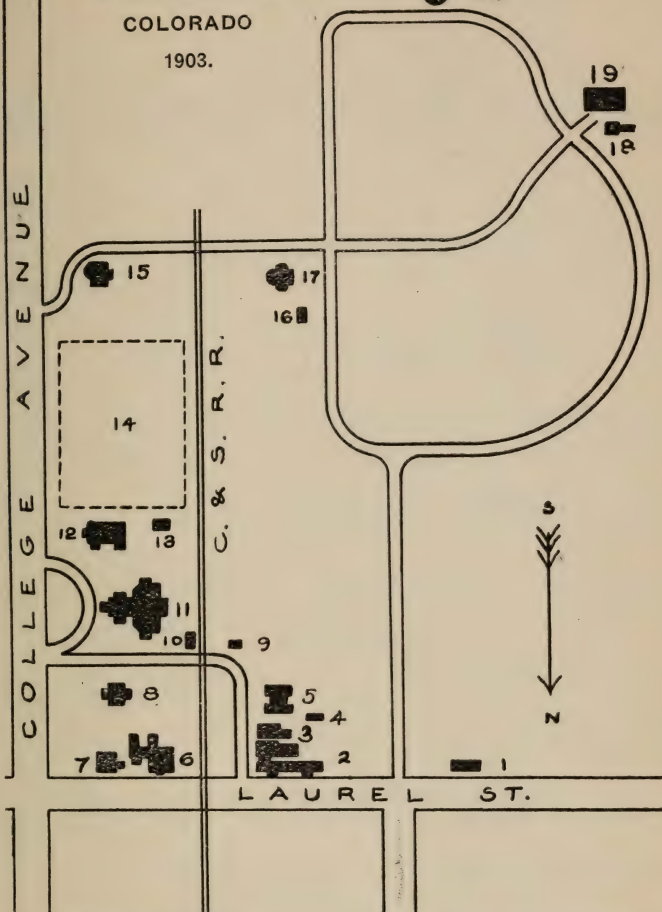
MAP OF THE CAMPUS OF

# The State Agricultural College

FORT COLLINS

COLORADO

1903.



- |                                       |                                           |
|---------------------------------------|-------------------------------------------|
| 1 Horticultural Barns.                | 11 Main College Building.                 |
| 2 Mechanic Arts Hall.                 | 12 Chemical laboratory.                   |
| 3 Mechanical Experimental Laboratory. | 13 Apiary.                                |
| 4 Hose House.                         | 14 Athletic and Parade Grounds.           |
| 5 Commercial College.                 | 15 Agricultural Hall.                     |
| 6 Horticultural Hall.                 | 16 Barn for Farm Residence.               |
| 7 Domestic Science Hall.              | 17 Residence of Professor of Agriculture. |
| 8 Civil Engineering Building.         | 18 Office and Tool House.                 |
| 9 Meteorological Station.             | 19 College Barns.                         |
| 10 College Station.                   | 20 Sheep Paddocks.                        |
- Horse Barn, Lavatory and Central Heating Plant added recently.

Col - Agric. college g. 12 p. 1

p12051

# THE STATE BOARD OF AGRICULTURE

|                                          | TERM<br>EXPIRES       |
|------------------------------------------|-----------------------|
| HON. P. F. SHARP, <i>President</i> ..... | Denver.....1905       |
| HON. JESSE HARRIS.....                   | Fort Collins..1905    |
| HON. HARLAN THOMAS.....                  | Denver.....1907       |
| MRS. ELIZA ROUTT.....                    | Denver.....1907       |
| HON. JAMES L. CHATFIELD.....             | Gypsum.....1909       |
| HON. B. U. DYE.....                      | Rocky Ford..1909      |
| HON. B. F. ROCKAFELLOW.....              | Canon City..1911      |
| HON. EUGENE H. GRUBB.....                | Carbondale...1911     |
| GOVERNOR JAMES H. PEABODY,               | } <i>ex-officio</i> . |
| PRESIDENT BARTON O. AYLESWORTH,          |                       |

---

## OFFICERS.

|                                  |                 |
|----------------------------------|-----------------|
| P. F. SHARP.....                 | President       |
| A. M. HAWLEY.....                | Secretary       |
| WHITNEY NEWTON .....             | Treasurer       |
| (State Treasurer, Denver, Colo.) |                 |
| GEORGE A. WEBB.....              | Local Treasurer |

# STANDING COMMITTEES

---

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## FINANCE.

E. H. GRUBB,                      B. F. ROCKAFELLOW,                      J. L. CHATFIELD.

## FARM, STOCK AND VETERINARY SCIENCE.

JESSE, HARRIS,                      B. U. DYE,                      E. H. GRUBB.

## FACULTY AND COURSES OF STUDY.

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## BOTANY, HORTICULTURE AND ENTOMOLOGY.

B. F. ROCKAFELLOW,                      B. U. DYE,                      J. L. CHATFIELD.

## MATHEMATICS, ENGINEERING AND MILITARY SCIENCE.

JESSE HARRIS,                      B. F. ROCKAFELLOW,                      B. O. AYLESWORTH.

## MECHANICS, CHEMISTRY AND ELECTRICAL ENGINEERING.

HARLAN THOMAS,                      JESSE HARRIS,                      B. O. AYLESWORTH.

## COLLEGE BUILDINGS AND PERMANENT IMPROVEMENTS.

B. U. DYE,                      HARLAN THOMAS,                      JESSE HARRIS.

## DOMESTIC SCIENCE AND LIBRARY.

ELIZA F. ROUTT,                      B. F. ROCKAFELLOW,                      B. U. DYE.

## COMMERCIAL DEPARTMENT, HISTORY AND LITERATURE, ENGLISH AND RHETORIC.

B. O. AYLESWORTH,                      J. L. CHATFIELD,                      ELIZA F. ROUTT.

## COLLEGE LANDS AND LEASES.

J. L. CHATFIELD,                      JESSE HARRIS,                      E. H. GRUBB.

# BOARD OF INSTRUCTION

---

BARTON O. AYLESWORTH, A. M. (Bethany College, 1880),  
LL. D. (Drake University, 1893),  
President and Professor of Political Economy and Logic.

JAMES W. LAWRENCE, M. E. (Colo. Agr'l College, 1902),  
Professor of Mechanical Engineering.

1.\* LOUIS G. CARPENTER, M. S. (Mich. Agr'l College, 1883),  
Professor of Civil and Irrigation Engineering.

CLARENCE P. GILLETTE, M. S. (Mich. Agr'l College, 1888),  
Professor of Zoology and Entomology.

WILLIAM P. HEADDEN, A. M. (Dickinson, 1872), Ph. D.  
Giessen, 1875),  
Professor of Chemistry and Geology.

THEODOSIA G. AMMONS,  
Dean of Woman's Work and Professor of Domestic Science.

EDWARD B. HOUSE, B. S., E. E. (Ann Arbor, 1896),  
Professor of Mathematics.

EDWARD M. TRABER, A. B. (Heidelberg, 1898),  
Professor of Rhetoric and Philosophy.

ALFRED M. HAWLEY,  
Secretary of the Faculty.

WILLIAM RUSSELL THOMAS, A. B. (Williams, 1865), Litt. D.  
(University of Denver, 1902),  
Professor of Constitutional History and Irrigation Law.

# BOARD OF INSTRUCTION

(CONTINUED)

---

RICHARD A. MAXFIELD, B. S. (Colo. Agr'l College, 1896),  
Major Cadet Battalion,  
Professor Military Science and Tactics.

L. D. CRAIN, B. M. E. (Purdue, 1892), M. M. E. (Cornell,  
1902),  
Professor of Electrical Engineering.

2.\* .....  
Professor of Agriculture.

VIRGINIA H. CORBETT, B. L. (Iowa Agr'l College, 1893),  
Professor of History and Literature.

WENDELL PADDOCK, M. S. (Michigan Agr'l College, 1896),  
Professor of Botany and Horticulture.

GEORGE H. GLOVER, D. V. M. (Iowa Agr'l College, 1885), M.  
S. (Colo. Agr'l College, 1902),  
Professor of Veterinary Science.

JOSEPH F. DANIELS,  
Librarian.

FRANK H. ORMSBY,  
Director of Music.

1\* On leave of absence for two years. State Engineer, Denver, Colo.

2\* To be filled.

# INSTRUCTORS AND ASSISTANTS

---

ROBERT E. TRIMBLE, B. S. (Colo. Agr'l College, 1885),  
Meteorology and Irrigation Engineering.

SAMUEL BOOTHROYD, B. S. (Colo. Agr'l College, 1893),  
Physics and Civil Engineering.

J. S. TITCOMB, B. S.,  
Field Work in Engineering.

\* .....  
Mechanical Engineering.

E. D. SEARING, B. S. (Mich. Agr'l College, 1902),  
Mechanical Engineering.

EDWARD P. BOYD, B. S. (University of Illinois, 1901),  
Architecture.

WILLIAM F. GARBE,  
Foundry Practice.

F. H. HADLEY,  
Forge-Room Work.

FRED C. ALFORD, B. S. (Colo. Agr'l College, 1896),  
Chemistry.

EARL DOUGLASS, B. S. Colo. Agr'l College, 1900),  
Chemistry.

LATHROP M. TAYLOR, B. S. (Maryland Military Academy,  
1887),  
Stenography and Typewriting.

CHARLES G. DWYRE, B. ACCT. (National Business Inst.,  
1901),  
Bookkeeping.

S. L. MACDONALD (Indiana State Normal, 1899),  
Mathematics.

SARAH T. SUTHERLAND,  
Domestic Science.

\*To be filled,



# INSTRUCTORS AND ASSISTANTS

(CONTINUED)

---

MABEL MEAD, B. S. (Cornell, 1898),  
German, French and Spanish.

L. A. JOHNSON, M. S. (Rutger's College, 1895),  
Entomology.

FRED M. ROLFS, B. S. (Ames, 1897),  
Botany and Horticulture.

HENRY H. ORTH,  
Horticulture and Landscape Gardening.

CLARENCE J. GRIFFITH, B. S. A. (Ames, 1900),  
Animal Industry.

ANDREW H. DANIELSON, B. S. (University of Wyoming,  
1899),  
Agronomy.

E. L. SPAULDING, B. E. (Ralston University, 1900),  
Oratory.

WILLIAM O'BRIAN,  
Farm Superintendent.

RAPH H. HESS, B. S. (Colo. Agr'l College, 1897),  
Secretary to the President.

B. D. G. BISHOP, B. S. (Colo. Agr'l College, 1901),  
Second Assistant in Chemistry.

NELLIE M. DRAKE, B. S. (Colo. Agr'l College, 1900),  
Domestic Science.

ARTHUR MILLIGAN,  
Stenographer, Director's Office.

MARGARET MURRAY,  
Stenographer.

KATHARINE MURRAY,  
Stenographer.

## FELLOWS

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### *First Year.*

ORO McDERMITH, '02.  
HARRY TRUE, '02.  
ERNEST F. GRAVES, '02.  
FRED BISHOP, '02.  
LEROY A. BAKER, '01.

### *Second Year.*

ROYAL S. HOWLETT, '01.

## FIELD AGENTS

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PHILO K. BLINN, B. S.,  
Rocky Ford Station.

J. E. PAYNE, M. S.,  
Plains Station.

## STATION STAFF

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L. G. CARPENTER, M. S., *Director*..IRRIGATION ENGINEER  
C. P. GILLETTE, M. S.....ENTOMOLOGIST  
W. P. HEADDEN, A. M., PH. D.....CHEMIST  
WENDELL PADDOCK, M. S.. ..HORTICULTURIST  
R. E. TRIMBLE, B. S....ASSISTANT IRRIGATION ENGINEER  
A. H. DANIELSON, B. S.....ASSISTANT AGRICULTURIST  
F. M. ROLFS, B. S.....ASSISTANT HORTICULTURIST  
EARL DOUGLASS, B. S.....ASSISTANT CHEMIST  
L. ARTHUR JOHNSON, M. S..ASSISTANT ENTOMOLOGIST  
P. K. BLINN, B. S.....  
.....FIELD AGENT, ARKANSAS VALLEY, ROCKY FORD  
J. E. PAYNE, M. S..PLAINS FIELD AGENT, FORT COLLINS

## OFFICERS

---

PRESIDENT BARTON O. AYLESWORTH, A. M., LL. D.  
L. G. CARPENTER, M. S.....DIRECTOR  
A. M. HAWLEY.....SECRETARY  
A. D. MILLIGAN.....STENOGRAPHER AND CLERK

# CALENDAR OF EXERCISES

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1903-1904.

|                                                   |                                        |
|---------------------------------------------------|----------------------------------------|
| Entrance Examinations.....                        | Monday, August 31, 1903                |
| Registration of Students.....                     | Tuesday and Wednesday, Sept. 1-2, 1903 |
| Fall Term Begins.....                             | Thursday, September 3, 1903            |
| Fall Term Closes.....                             | Friday, November 27, 1903              |
| Winter Term Begins.....                           | Monday, November 30, 1903              |
| Holiday Recess Begins.....                        | Wednesday, December 23, 1903           |
| Holiday Recess Closes.....                        | Monday, January 4, 1904                |
| Winter Term Closes.....                           | Friday, March 5, 1904                  |
| Spring Term Begins.....                           | Monday, March 8, 1904                  |
| Sermon Before Christian Associations              | 3 p. m. Sunday, May 30, 1904           |
| Baccalaureate Sermon.....                         | 8 p. m. Sunday, May 30, 1904           |
| Commencement Exercises of Literary Societies..... |                                        |
| .....                                             | 8 p. m. Monday, May 31, 1904           |
| Junior Class Day Exercises.....                   | 8 p. m. Tuesday, June 1, 1904          |
| State Board of Agriculture Meets.....             | Wednesday, June 2, 1904                |
| Senior Class Exercises.....                       | 10 a. m. Wednesday, June 2, 1904       |
| Alumni Debate.....                                | 8 p. m. Wednesday, June 2, 1904        |
| Commencement Exercises.....                       | Thursday, June 3, 1904                 |
| Reunion of Alumni.....                            | 8 p. m. Thursday, June 3, 1904         |

## Location and History

**Location.**—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer County, which is one of the most prosperous agricultural counties in the State. The town contains 5,000 inhabitants, and is beautifully situated, about five miles from the foothills, and in full view of Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light, and its sidewalks are exclusively made of flagstone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Colorado and Southern Railway are its buildings and the farm. Visitors are always welcome. They find the town accessible by four trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

**History.**—The origin of The State Agricultural College of Colorado, like that of its sister institutions in other states, dates back to an act of Congress, passed July 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, "a college where the leading object shall be, without excluding other scientific and classical studies, and including Military Tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

This act gave the College an endowment of 90,000 acres of land.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State **two hundred and forty acres of land** whereon to erect the necessary buildings. In 1877, the Legislature provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The corner-stone of the Main College Building was laid July 29, 1878. This building was completed and ready for occupancy early in the following year.

The initial term of the College opened September 1, 1879. The record shows the enrollment of twenty different students at the close of this term. There was but one course of study. The college year began with the spring term and closed with the autumn term, the vacation season occurring in midwinter. The calendar for 1881-1882 shows the abandonment of this arrangement and the adoption of the present plan of three consecutive terms of thirteen weeks each, with a short vacation at Christmas season and a long vacation extending from "Commencement Day," early in June, to the first Monday in September.

Elective studies are first noted in the catalogue for 1886-'87. The next year brings the announcement for the differentiation of the work at the close of the Sophomore year. Two courses, the Agricultural and the Mechanical, are outlined. The Irrigation Engineering Course and the Ladies' Course were first scheduled in the catalogue for 1889-'90. The Commercial Course, to be completed in two years, was introduced in 1896.

The enrollment of students and the number of graduates for the last four years is as follows:

| Years.    | Males. | Females. | Total. |
|-----------|--------|----------|--------|
| 1900..... | 245    | 119      | 364    |
| 1901..... | 273    | 114      | 387    |
| 1903..... | 369    | 124      | 493    |

The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoology and Entomology, Mechanical Engineering, Civil and Irri-



gation Engineering, Electrical Engineering, Mathematics, Constitutional History and Irrigation Law, Logic and Political Economy, History and Literature, Rhetoric and Philosophy, Architecture, Domestic Science, Veterinary Science, Modern Languages, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, Oratory and Physical Culture.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

"The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, and shall be a high seminary of learning, in which the graduates of the common schools, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those Sciences and Arts which bear directly upon agriculture and kindred industrial pursuits."

## THE AGRICULTURAL EXPERIMENT STATION

The Agricultural Experiment Station is a department of the College in accordance with the Act of Congress of 1888, commonly known as the Hatch Act. The station is supported by an annual Congressional appropriation of \$15,000. This is available for conducting investigations and experiments, and in disseminating the results of such investigations. It is also aided in various ways by the State Board of Agriculture.

The investigations of the station are made principally at the main station at Fort Collins, where the equipment is located; but in case the necessities of an investigation or the urgent needs of any part of the State are helped by entering on observations elsewhere, this is done so far as the time and means permit. With the large area of Colorado and the diversity of conditions a great variety of questions arise for solution. The necessities of our conditions confine us to the more important, using the results of other stations where applicable to our conditions. The situation in our State and the peculiarities of our agriculture indicate that the principal efforts should be along the lines related to irrigated agriculture. The station has for years given attention to the growth of sugar beets in all parts of the State and in conjunction with the Department of Agriculture at Washington has distributed seed and made analyses which have given the knowledge for the establishment of factories; has carried on co-operative experiments, with the aid of many, on irrigation questions, as on the duty of water and the determination of seepage from hundreds of miles of streams and ditches; co-operated in the investigation of fruit pests and plant diseases, etc. The director acts as special agent of the United States Department of Agriculture in the sugar beet and sorghum investigations, and another member of the staff acts as special agent in co-operative grass and sugar beet seed investigations. Under a recent act of Congress all seeds of grass and forage plants are distributed through the Experiment Station instead of through Congressmen or the Department of Agriculture.

There are two field stations, one near Rocky Ford and one at

Cheyenne Wells on the Great Plains. Each of these is a portion of the main station, with a superintendent in charge, carrying on the investigations outlined or approved by the director and adopted by the State Board of Agriculture.

The publications of the station are sent without charge to those desiring them. They are of four classes:

1. **Bulletins.**—Over eighty have been published on various topics of agricultural interest. These are distributed, so far as the editions permit, to those interested in Colorado agriculture. There are bulletins on irrigation matters, alfalfa, sugar beets, barley and other field crops, cattle and sheep feeding, strawberries, small fruits and other garden crops, insects, etc. Lists of those printed can be supplied. The bulletins are sent regularly to those whose names are on the mailing list.

2. **Annual Reports.**—These are largely administrative and technical. They are not prepared for general distribution, and hence issued in smaller editions. The last is the Fifteenth Annual Report.

3. **Press Bulletins.**—Shorter statements of experience in various lines, or information needing immediate distribution. Sent to papers and to individuals, according to subject matter. Issued as the need arises.

4. **River Press Bulletins.**—These are weekly reports issued during the irrigation season, rendering information on the current water supply of the Cache a la Poudre River, obtained in pursuance of other investigations, available to the public. Issued in small numbers. Sent to the newspapers of Northern Colorado and to interested individuals. There were twenty issued in 1902.

Many bulletins are out of print. Copies are desired to complete sets for libraries.

For Station publications or general correspondence, address: The Director of the Experiment Station, Fort Collins, Colorado.

The following Bulletins may be had on application:

| No. | Title.                                       | Author.                         |
|-----|----------------------------------------------|---------------------------------|
| 33. | Seepage, or Return Waters from Irrigation... | L. G. Carpenter                 |
| 35. | Alfalfa.....                                 | William P. Headden              |
| 36. | Sugar Beets.....                             | W. W. Cooke, William P. Headden |

38. Sheep Scab; A Few Insect Enemies of the Orchard....  
.....C. P. Gillette
39. A Study of Alfalfa and Some Other Hays. William P. Headden
55. Forests and Snow.....L. G. Carpenter
57. Farm Notes (Alfalfa, Corn, Potatoes and Sugar  
Beets).....W. W. Cooke
63. Sugar Beets, A Resume of Work Done by Colorado  
Agricultural Experiment Station.....W. P. Headden
64. Press Bulletins Nos. 1 to 11, inclusive.
65. Soil Study, Part III, The Soil.....W. P. Headden
66. Relation of Bovine to Human Tuberculosis, Tuberculin  
Tests of College Herd....G. H. Glover and B. C. Buffum
67. Distribution of Water, Powers and Duties of Colorado  
Officials.....H. N. Haynes
68. Pasture Grasses. Leguminous Crops. Cantaloupe  
Blight.....H. H. Griffin
69. Plant Diseases of 1901.....Wendell Paddock
70. Potato Failures. A Preliminary Report.....F. M. Rolfs
71. Insects and Insecticides.....C. P. Gillette
72. A Soil Study. Part IV. The Ground Waters.....  
.....W. P. Headden
73. Feeding Value of Beet Pulp, Part II. Beet Pulp and  
Sugar Beets for Cows....B. C. Buffum and C. J. Griffith
74. Swine Feeding. Beet Pulp and Sugar Beets. Home  
Grown Grains vs. Corn. Other Trials.....  
.....B. C. Buffum and C. J. Griffith
75. Lamb Feeding Experiments. Sugar Beets and Beet  
Pulp. Grain and Corn. Other Trials.....  
.....B. C. Buffum and C. J. Griffith
76. Feeding Beet Pulp to Lambs.....H. H. Griffin
77. Unirrigated Lands in Eastern Colorado.....J. E. Payne
78. The Tomato Industry of the Arkansas Valley...H. H. Griffin
79. Treatment of Stinking Smut in Wheat.....Joseph Reed
80. Onion Growing in the Poudre Valley.....W. Paddock
81. Laying Down Peach Trees.....W. Paddock

PRESS BULLETINS.

The following are still available:

| No. | Title.                                                  | Author.         |
|-----|---------------------------------------------------------|-----------------|
| 4.  | The Beet Army Worm.....                                 | C. P. Gillette  |
| 6.  | A So-Called Blight Cure.....                            | C. H. Potter    |
| 7.  | The Seepage Measurements of the Experiment Station..... | L. G. Carpenter |
| 8.  | Potato Failures (1900).....                             | W. Paddock      |
| 9.  | Sunshine for 1900.....                                  | L. G. Carpenter |
| 10. | Sugar Beets, Summary from Bulletin 63.....              | W. P. Headden   |
| 11. | How to Fight the Codling Moth.....                      | C. P. Gillette  |
| 12. | Potato Failures (1901).....                             | W. Paddock      |
| 13. | The Best Time to Cut Alfalfa.....                       | Wm. P. Headden  |
| 14. | Return Waters of Boulder Creeks.....                    | L. G. Carpenter |
| 15. | Return Waters of the Uncompahgre.....                   | L. G. Carpenter |
| 16. | The Prairie Dog as a Range Pest.....                    | J. E. Payne     |
| 17. | Trials of Macaroni Wheat.....                           | J. E. Payne     |
| 18. | Crops for Dry Farming.....                              | J. E. Payne     |



## BUILDINGS AND EQUIPMENTS

**Main College Building.**—College Hall, with its new addition, contains large recitation rooms for the following-named departments: Mathematics; English and Philosophy; History, Literature and German; Latin, Spanish and French; Political Economy and Logic; Constitutional History and Irrigation Law; and Zoology and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoological Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 800 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory 40x72 feet, for drill, and an adequate Gymnasium; office of The Rocky Mountain Collegian; special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

**Chemical Laboratory.**—This building is designed after the French Renaissance style of architecture, with the individual grace and picturesque effect of the old French chateaux. It appears in pleasing contrast with the Romanesque structures in the midst of which it is erected. It is constructed of red sandstone rubbed and smoothed. In the interior arrangement, convenience and facility for carrying on efficient chemical analysis are kept in mind.

To the left of the main loggia, on the first floor, is the professors' suite of rooms, including office, balance room and private laboratory—the latter being provided with hoods and direct communication with a storage room in the basement.

To the right the stairway leads to an entrance to the second floor. Directly in front of the main entrance is the qualitative laboratory, 30x38 feet, supplied with working desks large enough to accommodate thirty-two students. The room is provided with nine hoods, storage room and balance room. This room, being an inside room, is lighted by a large sky-light in the roof—a superior system of lighting when the work to be done is considered.

To the left of this laboratory and behind the professors'



rooms is the quantitative laboratory, arranged to accommodate twelve students. It is furnished with six laboratory desks, two hoods and a balance room.

All laboratory desks throughout the building are made of quarter-sawed oak tops and butternut sides, drawers, etc. The sinks are placed at the sides of the laboratories. Each desk is provided with gas and water supplies; also a two-inch waste, flush with the top of the desk; this waste takes the place of sinks in the desk and eliminates much uncleanness usually connected with the work. The hoods are furnished with gas and water supplies; also with strong draft, accelerated by steam coils placed in the large vent stacks.

The second floor of the building is arranged into two lecture rooms, each about 26x46 feet. The chemistry lecture room is connected with the apparatus room by a large hood, provided with slides on both sides, making the transfer of apparatus rapid and convenient. There is connection, also, with the museum and chemical cabinet. The geology lecture room is connected with microscopical room and the museum. The basement is used principally for storage and heating purposes, gas generation, and some analytical work.

The Experiment Station occupies the western section of the first floor. It consists of a room for the assistants, a large work room, store room, balance room and a small room for nitrogen determinations.

**Horticultural Hall.**—The Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52x64 feet. It is basement, two stories and attic in height. The basement, which is composed of Pleasant Valley red sandstone, stands high above grade line and gives excellent rooms for grafting, experimental work and the storing of implements. The first story of the building has a ceiling height of fourteen feet and is planned to contain one large lecture room, office, assistant's office, herbarium and other small rooms for experimental work. The second floor is arranged for a large museum, with octagon ceiling; also private laboratories, as well as plant, seed and apparatus rooms. The attic is floored

and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick, trimmed with Pleasant Valley red sandstone rubbed to a smooth finish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this Department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated thoroughly by the best improved system of hot water. The rooms are thoroughly ventilated by modern means, and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

**Greenhouses and Forcinghouse.**—The new greenhouse recently completed is one wing of a plan which contemplates the addition, at some future time, of a palm-house, and a second wing similar to the one built. Its construction is such that the other parts can be added at any time.

The structure is 25x50 feet and consists of a wrought iron frame securely bolted to cast sills which cap, and are supported by, brick walls rising from a stone foundation. The frame carries the heating pipes and also the shafting from the self-locking ventilating machines. The glazing strips are of clear Gulf cypress, fitted to special castings at either end, and firmly fastened to iron purlins. The house is provided with non-freezing gutters and is glazed with the best greenhouse glass. The benches are of iron, with porous tile bottoms and cypress sides. Two lines of sash at the sides and two at the ridge are connected with geared machines which give perfect control over ventilation.

The frame of the house possesses strength, and at the same time offers little obstruction to light. In plan and details the

structure is modern; embracing the best that is known in greenhouse construction. It was purchased of the Lord & Burnham Company, of New York City.

In addition to this greenhouse there has been added a forcing-house, 20x50 feet, made of cypress frame resting upon brick walls, and a glass connection between the forcing-house and the laboratory, which is 14x14 feet. In this latter house the sides are carried perpendicular to the height of nine feet, affording space for tall plants.

**Orchards and Grounds.**—The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds and cold-frames.

**Agricultural Hall.**—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for an agricultural museum. The first floor is divided into a hallway and four large, comfortable rooms. Here are found the office of the Professor of Agriculture and his assistants, churning rooms, dairy laboratory and seed room. The basement has four apartments, which are used for heating apparatus and storage.

**Farm and Stock.**—The farm contains 240 acres, nearly all under cultivation. In addition to this there has been recently purchased 360 acres of excellent grazing land near Fort Collins, containing a reservoir and the spring from which the college grounds are supplied with drinking water.

The live stock consists of Clydesdale grade draft horses, Shorthorn, Ayrshire, Polled Angus, Hereford and Jersey cattle Shropshire sheep, and Berkshire, Tamworths and Poland China hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will permit.

**Mechanical Engineering Building.**—This building includes two large main portions, two stories high, and an ell, one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in

charge. The tool room is at the middle of the south side of the room; it is supplied with a good assortment of small tools, such as taps, dies, reamers, gages and milling machine cutters. The tools for cutting, threading and fitting iron pipe are also kept in this room. These tools will handle pipe from one-quarter inch up to two inches. Taps are provided for each size of pipe.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, two 17-inch engine lathes, two 14-inch engine lathes, one 13-inch engine lathe, one speed lathe, one 20-inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, a universal tool and cutter grinder, a twist drill grinding machine, an emery stand, carrying two wheels 16 inches in diameter, a 36-inch grindstone, a 10-inch sensitive drilling machine, and one power metal saw.

An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting.

At the west end of this story is a well-lighted classroom used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the building is devoted to bench and machine work in wood. There are 37 benches, each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, eight wood-turning lathes, a 16-inch patternmaker's lathe with compound rest, a wood trimmer, a 36-inch grindstone and a good supply of clamps.

In the lower story of the east main portion of the building is the engine room, containing the 50-horsepower Corliss engine, which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gage tester affords a means of correcting steam gages.



Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room, which occupies the upper part of this building, has accommodations for fifty students. In the ell portion of the building are found iron store-room, blacksmith shop and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are twenty-five forges, all attached to a system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks and skimmers. Most of the equipment for this room, including the cupola and brass furnace, was made by the students.

**Mechanical Engineering Laboratory.**—The building is situated directly south of the present Mechanical Engineering Building, and is known as the Mechanical Engineering Laboratory. It is 40 feet wide and 60 feet long, and built of pressed brick.

The object of the work of the Laboratory is to give the advanced students an opportunity to make investigations of the physical properties of materials of construction entering into buildings, machinery and other structures; and also to make tests and examinations of different kinds of boilers, engines, motors, pumps and all kinds of mechanical appliances which may be obtained for the use of the department. A number of pieces of apparatus have been given by generous parties for carrying on this work.

As a great deal of the work of investigation is along the line of steam engineering, a new 80-horse power boiler is placed in the Laboratory in order to have the steam needed close at hand. The boiler is so arranged as to allow of its being subjected to regular commercial and scientific tests, and students are instructed how to find the horsepower, how to test for strength, how to test the quality and quantity of the steam furnished by the boiler and to obtain its efficiency.

To test the quality of steam, that is, to find out the amount of

moisture in it, there are on hand four different styles of calorimeters, a Carpenter throttling calorimeter, a Carpenter continuous calorimeter and a Barrus calorimeter. There is also a calorimeter devised and made by the students. In connection with these calorimeters there are thirteen thermometers of a high degree of accuracy. These are cylindrical bulb thermometers. There are also several high-grade steam pipe thermometers designed to get the temperature of steam flowing through pipes.

A draft gage is also provided for measuring the draft of the smoke stack in connection with the boiler trials. Provision is also made to secure samples of the chimney gases for chemical analysis, in order to assist in ascertaining the thoroughness of combustion of the fuel. The temperature of the gases may also be taken with a suitable instrument which is provided. Several mercurial pressure and vacuum columns are provided. All instruments are carefully calibrated before tests are made with them.

A large water tank and weighing scales are provided, so that the amount of water used and turned into steam may be ascertained while the trial is being made. Three steam engines are in the building. One is of 12-horse power, made by the Denver Engineering Company; one of 6-horse power, another of 5-horse power; the latter was made by the students. These engines may be run with different loads and at different speeds. Upon these engines brakes are placed, so that a load on the engine may be accurately measured. The students are instructed how to set eccentrics and valves, and how to ascertain the horse power of the engine. For this latter purpose, there are on hand two Crosby steam engine indicators, with five springs each, for varying pressures of steam. Brumbo pulleys are ready for use with the indicators and are used to make the stroke of the indicators proportionate to the stroke of the engine. There is also a reductor at hand, for the same purpose, made by Schaeffer & Budenburg, New York.

A United States Observatory barometer, made by Henry J. Green, of Brooklyn, is in the building, to be used in connection with the boiler, engine and pressure tests of various kinds. The airbrake appliance, made by the Westinghouse Airbrake Company, is in this building. It consists of a complete outfit for engine, tender and one car, including all the tanks, valves and en-



gineer's triple valve. Besides using this for the purpose of investigation, the air pump attached is used to furnish air to other kinds of pneumatic machinery. There is also a quick action triple valve, made by the New York Airbrake Company.

There are micrometers and verniers ready for use, which will measure in thousandths of an inch. An ingenious water meter registers the number of gallons of water passing through a pipe in a given time. This is used in connection with the hydraulic work. The planimeter is used for measuring the area of diagrams drawn upon paper, and is used in connection with the figuring out of test diagrams of various kinds. It is of the Amsler design. Revolution counters are used in connection with the engine and motor tests.

There are two steam pumps in this laboratory, one made by George F. Blake, of New York, the other by M. F. Davidson, of Brooklyn, N. Y. The setting of valves and the testing of the efficiency of these pumps are features of the work. Nine steam gages have been presented by different makers, which give a good variety upon which to make investigations. For testing gages, two first-class machines are ready; one for testing pressure gages, the other for testing vacuum gages.

Two sizes of the Hancock inspirator furnish means of studying this highly interesting instrument. Tables are arranged at convenient intervals in the room at which the students are first required to make their theoretical and mathematical calculations, and afterwards compare the practical results of the tests with these calculations. Tabulated results of all tests are made upon blanks of suitable form.

**Civil and Irrigation Engineering.**—The building formerly used as a Dormitory is at present used as the Department of Civil and Irrigation Engineering.

The main classroom is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A room on the second floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On

the first floor are the offices, and the room for carrying on the work of the section in the Experiment Station. The office of the Director of the Experiment Station is also in this building. There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor to lessen injurious vibration is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000 pounds, for testing the flow of water through orifices and over weirs. Here also is placed a Pelton water motor and the cement-testing instrument, together with other equipment, pipes, pressure gages, etc., for experimentation. The experiments in measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances, spherometers; gages; gyroscope; air pump and accessories; thermometers; mirrors and lenses, projecting lantern; electrical machines; dynamo; batteries; standard B. A. ohm; Queen 100,000 ohm resistance coil; astatic, sine, tangent and d'Arsonval and other galvanometers; Edelmann ohmmeter; quadrant; electrometers; voltmeters; telephones; standard cells; a complete set of standard units; and much minor equipment.

For use in Engineering and Hydraulics it has Colorado, Lallie, Price, Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube; registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gages; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water motor, presented to the Department by the Pelton Water

Wheel Co., a water meter presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and several Buff and Berger transits; eight levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; six compasses; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; integrator; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

**Domestic Science.**—The Department of Domestic Science occupies a building which is fitted up for a home. On the lower floor is a large kitchen 25x34 feet in size. It is well lighted and contains furniture and classroom utensils so that a large class can be accommodated. Adjoining this room is a smaller kitchen, which is very convenient for extra work, or for use on occasions of entertaining, since it opens into the dining room. This latter room is used only for the smaller functions and special demonstrations in table setting, sewing, etc.

At the end of the hall is situated the laundry, which is furnished with porcelain-lined stationary wash-tubs, laundry stove and tank, cupboard, ironing-boards, etc. The other room on this floor is a store-room.

On the second floor, to the right on entering the hall, is a reception room, suitably furnished. Back of this is a bedroom, which is designed to be a model room. Another room opens to the right at the lower end of the hall. This contains two apartments, conveniently equipped with bath-room appliances. These rooms are for the use of such young women in the College as may desire to use them. Situated as they are, immediately over the laundry, there is no difficulty in heating the water.

The classroom, also 25x34 feet, is located on the south side of the building immediately over the kitchen. It is furnished with sewing machines, tables and large cases. The latter are used as receptacles for work and an individual compartment is supplied each student.

This same room serves additional purposes. Sometimes it is a reception-room, at other times a dining-room; as the same tables are used for cutting, sewing and dining. The Chinaware is also kept in this room in nicely arranged closets. From the rear of the classroom one enters the fitting-room, which, in addition to general furniture, contains a large closet where garments in process of making, materials, etc., can be protected.

The accommodations and appliances are ample for classroom and laboratory work in everything connected with household management.

**Military Science and Tactics.**—This Department has two hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice and artillery firing.

**The New Lavatory.**—Cleanliness, health and good taste are not only made possible, but inculcated by the use of this building which is a model of convenience and modern appliances.

The walls are of pressed brick, the floor tile, the furnishings marble with the best plumbing.

Baths—both tub and shower—are provided. Also lockers for the students of the Athletic Association.

The institution is absolutely sanitary since the erection of this perfectly appointed Lavatory.

**The New Central Heating Plant and Electrical Engineering Building.**—A two-story building of grey sandstone is nearing completion, in the first story of which will be stationed a central heating plant. From this all the buildings can be adequately and safely heated at far less expense than by the present system.

A dynamo will also be established for furnishing the grounds and buildings with electric light. In the second story will be placed the equipment of the Electrical Engineering Department.



**The New Horse Barn.**—After remodeling the old barn at an expense of eighteen hundred dollars for the use of cattle, it was necessary to erect a building for horses. This was done at a cost of six thousand dollars, a special appropriation from the State. It is said to be the most perfect barn of its kind in the West. It will serve as an educational model for both students and visiting farmers. It was designed by a student of the Department of Architecture.

**The New Hog Barn.**—Believing that a great industry has been most unwisely neglected in Colorado it is proposed to carry on extensive experimental work in the breeding and feeding of hogs. To this end a suitable building has recently been erected. It also will serve as an educational model, every device being employed conducive to the health and growth of the animal.

**Scientific and Technical Apparatus.**—All the departments of science have elaborate, modern and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy and entomology is done with the aid of apparatus representing a cost of \$30,000.

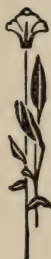
The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over \$29,000.





# First and Second Sub-Freshman Years

*Leading to  
Freshman Year  
of All Courses*





FIRST SUB-FRESHMAN YEAR.

FALL TERM.

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| Algebra, 5.             | } | P. M.—Drawing and<br>Recitations. |
| Elementary Rhetoric, 5. |   |                                   |
| History, 5.             |   |                                   |

WINTER TERM.

|                                                             |   |                                  |
|-------------------------------------------------------------|---|----------------------------------|
| Algebra, 5                                                  | } | P. M.—Shop.<br>Domestic Science. |
| Elementary Rhetoric, 5.                                     |   |                                  |
| $\frac{1}{2}$ Physiology.<br>$\frac{1}{2}$ General History. |   |                                  |

SPRING TERM.

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| Algebra, 5.             | } | P. M.—Drawing and<br>Recitations. |
| Elementary Rhetoric, 5. |   |                                   |
| American Literature, 5. |   |                                   |

SECOND SUB-FRESHMAN YEAR.

FALL TERM.

|                               |   |                                   |
|-------------------------------|---|-----------------------------------|
| Geometry, 5.                  | } | P. M.—Nature Study<br>Laboratory. |
| Nature Study, 5.              |   |                                   |
| German, French or Spanish, 5. |   |                                   |

WINTER TERM.

|                               |   |                                                                                                                         |
|-------------------------------|---|-------------------------------------------------------------------------------------------------------------------------|
| Geometry, 5.                  | } | P. M.— $\frac{1}{2}$ Physical Labor-<br>atory.<br>$\frac{1}{2}$ Shop.<br>$\frac{1}{2}$ Sewing Machine<br>Practice Work. |
| Physics, 5.                   |   |                                                                                                                         |
| German, French or Spanish, 5. |   |                                                                                                                         |

SPRING TERM.

|                               |   |                                                                      |
|-------------------------------|---|----------------------------------------------------------------------|
| Geometry, 5.                  | } | P. M.—Shop.<br>$\frac{1}{2}$ Cooking.<br>$\frac{1}{2}$ Summer Gowns. |
| Nature Study, 5.              |   |                                                                      |
| German, French or Spanish, 5. |   |                                                                      |

## AGRICULTURAL COURSE

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### FRESHMAN YEAR.

#### FALL TERM.

|                           |   |                                       |
|---------------------------|---|---------------------------------------|
| College Algebra, 5.       | } | P. M.— $\frac{1}{2}$ Mechanical Draw- |
| Rhetoric, 5.              |   | ing.                                  |
| Carpentry and Joinery, 5. |   | $\frac{1}{2}$ Shop.                   |

#### WINTER TERM.

|                  |   |             |
|------------------|---|-------------|
| Trigonometry, 5. | } | P. M.—Shop. |
| Literature, 5.   |   |             |
| Rhetoric, 3.     |   |             |
| Themes, 2.       |   |             |

#### SPRING TERM.

|               |   |                                       |
|---------------|---|---------------------------------------|
| Physics, 5.   | } | P. M.— $\frac{1}{2}$ Physical Labora- |
| Surveying, 5. |   | tory.                                 |
| German, 5.    |   | $\frac{1}{2}$ Surveying.              |

### SOPHOMORE YEAR.

#### FALL TERM.

|                            |   |                          |
|----------------------------|---|--------------------------|
| Mechanics, 5.              | } | P. M.—Zoological Labora- |
| Mediaeval Institutions, 2. |   | tory, 2.                 |
| Zoology, 3.                |   | Dairying Laboratory,     |
| Dairying, 5.               |   | 3.                       |

#### WINTER TERM.

|                      |   |                          |
|----------------------|---|--------------------------|
| Zoology, 2.          | } | P. M.—Zoological Labora- |
| English History, 3.  |   | tory, 3.                 |
| Stock Breeding, 5.   |   | Library, 2.              |
| Arid Agriculture, 5. |   |                          |



SPRING TERM.

|                                |   |                           |
|--------------------------------|---|---------------------------|
| Farm Management or Hy-         | } | P. M.—Entomological Labo- |
| draulics, 5.                   |   |                           |
| The Drama, 3.                  |   |                           |
| Entomology and Bee Keeping, 4. |   |                           |
| Chemistry, 3.                  |   | Histology, 2.             |

JUNIOR YEAR.

FALL TERM.

|                                                 |   |                                         |
|-------------------------------------------------|---|-----------------------------------------|
| Horticulture, 5.                                | } | P. M.— $\frac{1}{2}$ Horticultural Lab- |
| Chemistry, 5.                                   |   |                                         |
| Physiology, $\frac{1}{2}$ —5, $\frac{1}{2}$ —3. |   |                                         |
| $\frac{1}{2}$ Landscape Gardening, 2.           |   |                                         |
|                                                 |   | $\frac{1}{2}$ Chemical Labora-          |
|                                                 |   | tory.                                   |

WINTER TERM.

|                                    |   |                          |
|------------------------------------|---|--------------------------|
| Horticulture, 5.                   | } | P. M.—Physiological Bot- |
| $\frac{1}{2}$ Meterology, 5.       |   |                          |
| $\frac{1}{2}$ Canal Management, 5. |   |                          |
| Chemistry, 5.                      |   |                          |
|                                    |   | any, 3.                  |
|                                    |   | Chemical Laboratory,     |
|                                    |   | 2.                       |

SPRING TERM.

|                            |   |                            |
|----------------------------|---|----------------------------|
| Hydraulics or Farm Manage- | } | P. M.—Chemical Laboratory. |
| ment, 5.                   |   |                            |
| Stock Feeding, 5.          |   |                            |
| Agricultural Chemistry, 2. |   |                            |
| Recent History, 3.         |   |                            |

SENIOR YEAR.

FALL TERM.

|                           |   |                            |
|---------------------------|---|----------------------------|
| Logic, 3 (Required).      | } | P. M.—Chemical Laboratory. |
| Literature, 2 (Required). |   |                            |
| Veterinary Science, 5.    |   |                            |
| Chemistry, 5.             |   |                            |
| Horticulture, 5.          |   |                            |
| Breeds of Live Stock, 5.  |   |                            |
| Dairying, 5.              |   |                            |
| Bacteriology, 3.          |   |                            |
|                           |   | Diarying Laboratory.       |

## WINTER TERM.

Political Economy, 3  
(Required.)

Seminar, 1 (Required).

Veterinary Science, 5.

Chemistry, 5.

Farm Bacteriology, 5.

Judging Live Stock, 3.

Embryology, 2.

Evolution, 1.

P. M.—Chemical Laboratory,  
5.

Bacteriological Labor-  
atory, 2.

Embryological Labor-  
atory, 3.

## SPRING TERM.

Constitution of the U. S.  
(Required.)

Seminar, 1 (Required).

Veterinary Science, 5.

Advanced Botany, 5.

Chemistry, 5.

Advanced Entomology, 3.

Judging Live Stock, 3.

Dairying, 2.

P. M.—Chemical Laboratory,  
5.

Entomological Labor-  
atory, 2.

Dairying Laboratory,  
3.

## AGRICULTURE.

The new course in Agriculture is an unusually attractive one. We would not indicate that other courses here offered are not equally attractive to those interested in them, but we wish to call attention briefly to the Agricultural course, as a whole, as a means of obtaining an undergraduate foundation for general usefulness. The character of the college training here offered is one which is steadily gaining in public favor, and one which is receiving its share of praise from some of our men of letters who think deeply of human progress. The new idea is one of practical utility. That training which not only makes for mental development but also fits the physical powers to supplement the mental and gives the individual a bent and ability to so do a part of the world's work that he will be a factor in the world's progress is the sort of training which should be sought after and fostered. Our agricultural colleges offer this sort of training.

Extending our course one year, adding to, and rearranging the

studies and laboratories, place our work on a par with that offered by universities and makes a degree taken here mean more than ever before.

There are three general purposes which the Agricultural course here offered is designed to accomplish. **First**, it is a broad course, in every sense of the word, and will give a man a good general training. It is strong in language, especially English. The two years' course in German gives the best of training, and will enable students to make use of the German scientific investigations, which are stronger along agricultural lines than those of any other foreign country. The course contains enough of the humanizing studies to give the student some conception of the foundation of society and the progress of civilization. It contains enough mathematics for all practical purposes outside of such specialties as astronomy or engineering. It is strong enough in science to give a broad conception of evolution and the philosophy of life and to fit for special work. It is strong in laboratory and industrial features which train the hand, illustrate methods and purposes of investigation, and, along with the military drill, will insure physical health and manly bearing. **Second**, the course is designed to give such substantial foundation as will enable the student to enter upon and complete in the shortest possible time post-graduate courses in any of the professions. It would be difficult to arrange a more complete and effective course as a foundation for the study of medicine, law, pedagogy, chemistry and many other specialties. **Third**, the main object of the course outside of supplying a general education is to fit the man for that most difficult and independent of all professions, agriculture in its various phases. We expect the average student who finishes the prescribed studies here to be able to follow the profession of theoretical agriculture, as a teacher or investigator in our agricultural colleges and experiment stations, or to enter that practical, self-supporting post-graduate work on the farm which will make him prosperous, useful and happy through life. It can hardly be said that there is a science of farming, as every farm presents a different set of scientific and practical problems which must be worked out by the operator. No course of study can attempt to cover all such individual variations. What we do aim to do is to supply the theoretical knowledge and the mental training which will make the practice less difficult and more remunerative.

With such theoretical instruction as is here offered, the farmer will be able to meet his difficulties and solve his problem in a manner which will, in every way, accrue to his success and general welfare. The different branches of agricultural science here offered will give some idea of the wide scope of such study and enable the farmer to continue his investigations on his farm with that satisfaction which adds so much to life.

One of the most attractive features of the Agricultural course is the elective scheme in the Senior year. Throughout the course fifteen hours recitation and twenty hours of laboratory work are required. In the Senior year the course is so arranged that five hours in the Fall and Spring terms and four hours in the Winter term are devoted to studies required of all students alike. The remaining ten or eleven hours to fill in the time is devoted to such studies as the student may choose from those listed in the schedule. This gives each one considerable latitude in following out his natural inclination for certain special subjects, and will be a material aid to the student who, at the end of the Junior year, decided to follow some specialty. Suppose that after having taken the college course in Agriculture for three years, the student decides to follow Veterinary Science and raise live stock. Under this system he is able to elect live-stock studies and Veterinary Science throughout the Senior year. If he enjoys chemistry, horticulture or dairying, he will make these subjects his majors in electing his year's work. We believe this feature adds strength to the Agricultural course, and at the same time enables the thoughtful student to pursue the work leading to his graduation in a way that will be most pleasing and satisfactory to himself. No professor will be required to give an elective course unless three or more students apply for it.

As a whole, the course offers a happy combination of the lecture, the laboratory, the library and the elective, the most up-to-date methods of collegiate instruction and study.

**Departmental Instruction.**—In the Fall term of the second Sub-Freshman year the student begins to acquire some information about the underlying principles of Agriculture in the Nature Study given that term. This is supplemented and strengthened by Nature Study laboratory work on the farm and the garden two hours each afternoon.



In the Fall term of the Sophomore year a beginning course in Dairying is given, consisting of text-book work five hours per week, and laboratory work illustrating the text three afternoons per week. During the Winter term of the Sophomore year students devote five hours of recitation each week to the subject of Stock Breeding, and five hours to the History and Practice of Arid Agriculture. This is the first time a course in arid agriculture has been offered, and it should be attractive to all those interested in farming in regions of scanty rainfall. The subject of Farm Management alternates with Hydraulics in the Spring terms of the Sophomore and Junior years. This enables a doubling up of classes so that the Juniors and Sophomores will take Hydraulics one year and Farm Management the next in the same class.

The dairy laboratory will be open three afternoons per week in the Spring term of the Sophomore year to accommodate the Domestic Science course students and others who may wish to take dairying at that time.

Stock-feeding is given five hours each week through the Spring term of the Junior year. This course is of much practical value to every one, as it gives the science of nutrition, which is applicable to man as well as to animals. The student also learns to compute rations for the different classes of farm animals, for maintainance, work or meat production, according to their individual requirements.

In the Senior year the seminar required one hour each week in the Winter and Spring terms will give the students practice in doing outside reading as directed along the lines of study given in the Agricultural and Horticultural departments. Upon this reading they will prepare essays to be read and discussed in class. This will be most valuable instruction, as it will train the student in finding and reasoning about the opinions of others and give him reliance in his power of forming opinions for himself from his own discoveries and the facts recorded by others. The electives offered by this department for the Senior year are the breeds of Live Stock and Stock Judging through the year; Dairying in the Fall and Spring terms, and Farm Bacteriology during the Winter term. The Dairying and Farm Bacteriology are laboratory studies, and could not be taken by those electing Chemistry, which is also a laboratory study unless special arrangement was made to divide the laboratory work or enable extra hours to be devoted to it.



**Facilities for Instruction.**—Our facilities and equipment for offering instruction are almost unsurpassed by any agricultural school and they are continually being increased and improved. Classroom work is made more interesting by photographs, lantern slides and museum specimens.

Our dairy laboratory is well equipped with modern apparatus. A new gasoline engine furnishes the power to run the machine separators and churns, and a boiler furnishes steam for the large milk tester, sterilizer and Pasteurizer, and for heating water. Here are different forms of churns, separators, butter-workers and milk and curd testers. We now have well-equipped microscopes, sterilizers, incubators, and all the equipment necessary for practical work in Bacteriology. The students are given enough instruction in this line to enable them to understand and control these tiny organisms which may be so beneficial or harmful to the dairyman. The student handles the milk from the cow to the butter tub or print, by either the separator or deep cold setting process; and learns methods of valuing milk and paying for it according to test.

The college farm of two hundred and forty acres is happily situated for the purposes of instruction. Here we have exemplified most of the problems of getting water to land and of carrying off the surplus and seepage that will arise anywhere in the State. The main irrigation water supply is the pipe line nearly a mile from the canal; it is then used directly on the land or may be carried by an inverted siphon to a reservoir, and distributed from there to the various fields. A new storage reservoir has been purchased, and inlets and outlets so arranged that hereafter the farm will be supplied with late water as well as the early supply. This new reservoir catches the water draining through Soldier Canon, and it is believed will be more than adequate for our needs. The gathering of underground water and bringing it to the surface for irrigation purposes is exemplified by more than a mile of ditches and drains that tap the sloughs west of the farm, and provide, free of charge a large part of the irrigation water used on the farm. On the other hand, the carrying away of surplus water and the reclaiming of seepage land is here shown in all its phases. Some of the finest crops on the farm are grown on what was at one time a cat-tail swamp, and which has been reclaimed by a single line of tile.

Especially valuable to the student is the fact that the farm is a part of the Experiment Station. He has the advantage of watching the several experiments and noting the results. Here he can see and become acquainted with all the new forage and grain crops that are heralded by the seed trade, learn their adaptability to Colorado soil and conditions, while reference to the very complete library of the publications of all the other experiment stations will enable him to form a correct judgment as to their value for Colorado as compared with their usefulness in other parts of the country. This feature alone will save the student a great deal of time and money when he attempts to carry on a farm of his own.

Since Colorado is a great stock-producing State, one would expect the Live Stock department to be well supplied; nor will he be disappointed. The production of meat naturally holds the first place, and the possibilities in this line are exemplified by the finest herd of registered Shorthorns to be found in the West. Several additions to the herd have been made recently at large expense. The Herefords, which are so well thought of on Western ranges, are represented by a small herd of the best specimens which could be obtained, and a friend of the College has recently imported for us a choice herd of the Polled Angus breed. For the dairy we have a herd of choice registered Jerseys, and also through the generosity of the person alluded to above, a splendid herd of pedigree Ayrshires imported from Scotland. It is the avowed intention of the College authorities to add specimens of other breeds as fast as College finances will permit.

Swine are represented by the leading breeds, recent purchases of Tamworths and Poland Chinas. We have representatives of some of the best breeds of chickens. We already have a choice flock of Shropshire sheep, and will very soon add one or two other leading breeds. Experiments are continually being carried out in stock breeding, and it will be seen that the student has excellent opportunities for studying the various branches of the live-stock industry. The Board has recently decided to purchase some fine horses, so our equipment, as good as it is, will be greatly improved in the near future.

This department also possesses a well-equipped dark-room with the apparatus necessary for securing photographs of plants

and crops, live stock, implements and classes at work (valuable for classroom instruction), cuts for bulletins and other matter requiring illustrations of the work of the College.

The agricultural students have formed an Agricultural Club, which does most excellent work. In addition to this a grange organization holds regular meetings at the College. It will be seen that in addition to our general equipment, the student is thrown in contact with most active agricultural work in all its branches, so his education is not confined to mere classroom routine. While our graduates of the past have become most successful in their chosen work, the graduates of the future have much to look forward to in increased facilities and advantages.

## HORTICULTURE AND BOTANY

(See page 36 for Course of Study)

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### HORTICULTURE.

The study of Horticulture is begun in the Fall term of the second Sub-Freshman year with laboratory work in Nature Study, and continued through three terms and a half.

An effort is made to give practical instruction in Horticulture so far as the variation in climate and other conditions will permit. On the other hand, great stress is laid on imparting to the student a thorough knowledge of the scientific principles which are the foundation of the art. Methods necessarily differ greatly in the various sections of the State, but with a knowledge of the principles of Horticulture the student should be able to adapt himself to the conditions of the locality in which he may be located.

**Nature Study.**—Two hours each afternoon for one-half of the Fall term in the second Sub-Freshman year are devoted to learning the simpler horticultural operations. Each student is given practice in budding, grafting and making grafting wax. The different kinds of spraying mixtures are made and applied, wheat and oats are treated for smut, and seed potatoes for root fungi. Tree planting is given special attention, each student being required to plant a number of trees. In the greenhouse a general course in handicraft is given which includes the propagation of plants, mixing soils, sowing seed, transplanting, packing plants for sending by mail, etc.

**Principles of Plant Culture.**—The phenomena of germination are first considered, the subject of the relation of the plant to its surroundings is taken up, and includes a discussion of soils, cultivation, fertilization, moisture, heat, cold, etc. The propagation of plants is discussed at length. This includes the propagation by seeds, cuttings, layers, buds and cions. The latter part of the term is devoted to a study of the principles of vegetable growing.

During one half of the term the students work two hours each



afternoon in the laboratory. The work begun as Nature Study is continued. Advanced practical work is provided, and a portion of the time is devoted to simple experiments in plant physiology.

The course extends through the Fall term of thirteen weeks, and is required of the Juniors in the Agricultural and Domestic Science courses.

**The Principles of Fruit Growing.**—During the Winter term of thirteen weeks the Agricultural Juniors take up the study of fruit growing. The theory and practice of orchard management is considered in detail. The following topics are among those discussed: trees, choice of varieties; cultivation, fertilization, pruning and spraying of the orchard; harvesting and marketing the crop. Each of the fruits which are commonly grown in the State is considered more or less in detail as its importance demands.

The latter part of the term is devoted to a study of the principles of crossing, hybridizing and plant breeding.

**Plant Physiology.**—The study of plant physiology as related to the practical operations of Horticulture is designed to give the student an understanding of why certain things are done and how the results are attained. The subject is considered from the horticulturist's standpoint, and must be preceded by the course in plant histology. With a knowledge of the minute structure of plants the student is ready to understand how roots, stems and leaves perform their work, and to give the scientific explanation of the various horticultural operations. Elective for Agricultural students in the Winter term of the Senior year.

**Landscape Gardening.**—This subject is taught in the first half of the Fall term of the Junior year, and is required of the students in the Agricultural, Architectural and Domestic Science courses. The principles of landscape gardening are taught as a fine art. The purpose of the course is primarily to impart to the student an idea of good taste in arranging and planting home grounds. Then the subjects of parks, cemeteries and school grounds are considered. Other topics discussed are the position of the house, the location of walks and drives, making lawns and their care. Particular attention is given to the grouping of shrubs and the use of flowers on the lawn. A study of the trees and plants growing on the campus is also made a feature of the work.



The different topics are illustrated with the aid of the stereopticon. Thus the contrasts between good and bad planting are presented graphically to the student, as are the other topics that are discussed.

### FLORICULTURE.

During the Winter term of the Junior year students in the Domestic Science course are offered an elective in Floriculture and kitchen gardening. The instruction is divided between classroom work and practical work in the laboratory and the greenhouses. An effort is made to equip the future home maker or teacher with a practical knowledge of gardening operations.

### BOTANY.

Three terms are devoted to the study of Botany. The subject is taught from living specimens so far as possible, the text book is used for reference, but is resorted to for classroom work only when suitable material for study cannot be obtained.

**Nature Study.**—Required of all students in the Spring term of the second Sub-Freshman year. This subject is taught entirely as a laboratory study and mainly with the idea of developing the powers of observation. The student is trained from beginning to investigate and to give reasons for his conclusions. With the living subjects before him the curiosity of the student is aroused, consequently the learning of names and of plant relations becomes a pleasure. A study is made of the various plant organs, their relations to each other and to the plant. Two weeks are devoted to seedlings, then the roots, stems, leaves and fruit are taken up in turn.

This term's work is supplemented by a half term of laboratory work given in the preceding Fall term.

**Systematic Botany.**—No regular place is provided for the continuance of the work begun as Nature Study. But some time is devoted to this subject in connection with other studies. Special attention is given to the classification of grasses.

**Plant Histology.**—During the Winter term the Agricultural and Veterinary Juniors devote two hours a day to the study of the minute structure of plants. The student learns to use the com-

pound microscope to make sections and to investigate. The agricultural side of the subject is made prominent, and the course is made the foundation of the study of plant physiology, which is taught as a horticultural study in the Senior year.

**Plant Diseases.**—The study of plant diseases is offered as an elective to the Agricultural students in the Spring term of the Senior year. This is conducted mainly as a laboratory study and is designed to give the student a knowledge of economic fungi. This work must be preceded by all the other courses in Botany.

## ZOOLOGY

(See page 36 for Course of Study)

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**Physiology.**—In the Winter term of the first Sub-Freshman year physiology is taught three times a week to all students who can not pass a satisfactory examination in the subject, or present acceptable grades from accredited high schools.

During the Fall term of the Junior year, higher physiology is taken by the students in courses in Agriculture, in General and Domestic Science, and in Veterinary Science. **Outlines of Human Physiology** by Schenck and Gurber will be used as a text-book in connection with lectures and demonstrations in the classroom. There will be three recitation periods a week during the first half of the term and five periods during the last half. Prerequisite, Sub-Freshman physiology or its equivalent and vertebrate Zoology.

For teaching this subject the department is well equipped with skeletons of infant and adult, articulated and disarticulated, also a papier mache manikin of the entire human body with the organs colored as in life and removable, and enlarged models of special parts as eye, ear, larynx, brain, etc.

**Invertebrate Zoology.**—This subject is taught to those taking courses in Agriculture, General and Domestic Science and Veterinary Science, during the Fall term of the Sophomore year. There will be three morning lectures and two afternoon laboratory periods each week. Much stress is placed upon the laboratory work where the student sees and studies typical forms of the different groups of the animal kingdom, beginning with the lowest and simplest and later taking up those that are higher in structure and development. In order to develop definiteness and accuracy of observation, many carefully labeled outline drawings are required. While form, size and color are matters of more or less interest in themselves, the chief object is always to lead the student to see the relation existing between form and function and between the organism as a whole and its environment.

The department is well provided with microscopes, dissecting

instruments, charts, models and has a large collection of invertebrate animals in the College museum.

**Vertebrate Zoology.**—This subject is taught during the Winter term of the Sophomore year as a continuation of the preceding subject. It is required of the students in the Agricultural, Veterinary and General and Domestic Science courses only. There are two lectures and three laboratory periods a week. The methods of instruction are the same as in case of Invertebrate Zoology and the department is equally equipped for the work. Invertebrate Zoology is a necessary prerequisite for this course.

**Entomology and Beekeeping.**—These two subjects, together, are assigned four morning and two afternoon periods per week during the Spring term of the Sophomore year. They are required of Agricultural students and may be elected by ladies taking the course in General and Domestic Science. Both subjects are taught with a special view to their economic importance. As a basis for this, the student first learns the general structure and metamorphoses of insects. Each student is required to make a small collection representing the principal orders of insects and to properly mount and classify them. Then the leading injurious insects are taken up separately and their habits learned and the best known methods of preventing their injuries discussed.

Under the head of Beekeeping, the special structure and wonderful habits and life history of the honey bee are first taught. Then enough in regard to the management of an apiary is given to enable the student to get an insight into the business of beekeeping and decide whether or not he wishes to pursue the subject farther with a view of managing an apiary for himself.

For this work the College is equipped with every facility for collecting, rearing and mounting specimens. As a collecting ground, Colorado is unexcelled, and there is an insectary and apiary in connection with the department. Also a mounted collection of insects numbering over 50,000 specimens, among them a large number of types, particularly in the orders Hemiptera and Hymenoptera.

**Advanced Entomology.**—Anyone desiring to specialize along this line will be allowed to elect entomology for five morning and five afternoon periods a week during the Spring term of the Senior year.



**Histology.**—During the Spring term of the Sophomore year, histology is required of students in the Agricultural, Veterinary and General and Domestic Science courses. The subject is taught by means of lectures and laboratory work during two afternoon periods a week throughout the term. So far as possible, the tissues are hardened and sectioned for the student, but he is required to prepare mounts of various tissues for study. The department is provided with compound and dissecting microscopes, microtomes, books of reference, and a large series of permanently prepared microscope slides showing the tissues of the various organs in vertebrate animals, and other needed equipment for the work.

**Comparative Anatomy.**—The instruction given in this course is really a continuation of what was given in the two terms of Zoology. Special stress is laid upon a comparison of organs and systems, chiefly of vertebrate animals. This subject is required of students taking the Veterinary Science course.

**Animal Parasites.**—One lecture a week to students taking the course in Veterinary Science. The principal parasites, internal and external, attacking domestic animals, will be considered, also the remedial and preventive measures that may be employed against them.

**Embryology.**—This subject is taught during the Winter term of the Senior year to students in courses in Agriculture, General and Domestic Science, and Veterinary Science. There are three morning lectures and three laboratory periods devoted to the subject each week. Instruction will be given in the general principles of development and inheritance which will be followed with a comparative study of the development of the frog, chick, and man. The subject will be illustrated by wall charts, wax models, and especially prepared microscopic mounts. In the laboratory the student will study the structure of the germinal tissue, maturation, fertilization and segmentation of the ovum, and the formation of the germ layers and will watch the development of the eggs of the frog and chick.

**Evolution.**—The general principles underlying the development of organic beings, the laws of inheritance, and the history of the evolution idea, will be discussed in a series of lectures given once a week during the Winter term of the Senior year. Illustrated by the stereopticon.



# MECHANICAL ENGINEERING

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## FRESHMAN YEAR.

### FALL TERM.

|                           |   |                                       |
|---------------------------|---|---------------------------------------|
| College Algebra, 5.       | } | P. M.— $\frac{1}{2}$ Mechanical Draw- |
| Rhetoric, 5.              |   | ing.                                  |
| Carpentry and Joinery, 5. |   | $\frac{1}{2}$ Shop.                   |

### WINTER TERM.

|                                 |   |             |
|---------------------------------|---|-------------|
| Trigonometry, 5.                | } | P. M.—Shop. |
| English Literature, 5.          |   |             |
| Mechan'l Draw'g (Lettering), 2. |   |             |
| Rhetoric, 3.                    |   |             |

### SPRING TERM.

|                     |   |                                       |
|---------------------|---|---------------------------------------|
| Physics, 5.         | } | P. M.— $\frac{1}{2}$ Physical Labora- |
| Surveying, 5.       |   | tory.                                 |
| College Algebra, 5. |   | $\frac{1}{2}$ Surveying.              |

## SOPHOMORE YEAR.

### FALL TERM.

|                          |   |             |
|--------------------------|---|-------------|
| Mechanics, 5.            | } | P. M.—Shop. |
| Analytics, 5.            |   |             |
| Drawing, 2.              |   |             |
| Descriptive Geometry, 3. |   |             |

### WINTER TERM.

|                           |   |             |
|---------------------------|---|-------------|
| Differential Calculus, 5. | } | P. M.—Shop. |
| Workshop Appliances, 5.   |   |             |
| Drawing, 2.               |   |             |
| Descriptive Geometry, 3.  |   |             |

SPRING TERM.

|                                 |   |             |
|---------------------------------|---|-------------|
| Integral Calculus, 5.           | } | P. M.—Shop. |
| Special Machines or Hydraulics, |   |             |
| Drawing, 5.                     |   |             |

JUNIOR YEAR.

FALL TERM.

|                             |   |                            |
|-----------------------------|---|----------------------------|
| Principles of Mechanism, 5. | } | P. M.—Chem. Laboratory, 3. |
| Strength of Materials, 5.   |   | Strength of Mat. Lab-      |
| Chemistry, 5.               |   | oratory, 2.                |

WINTER TERM.

|                    |   |                            |
|--------------------|---|----------------------------|
| Chemistry, 5.      | } | P. M.—Chemical Laboratory, |
| Drawing, 2.        |   |                            |
| Machine Design, 3. |   |                            |
| Steam Boilers, 5.  |   |                            |

SPRING TERM.

|                                    |   |             |
|------------------------------------|---|-------------|
| Steam Engine, 5.                   | } | P. M.—Shop. |
| Metallurgy, 3.                     |   |             |
| Special Machines or Hydraulics, 5. |   |             |
| Pumping Machinery, 2.              |   |             |

SENIOR YEAR.

FALL TERM.

|                              |   |             |
|------------------------------|---|-------------|
| Gas and Oil Engines, 2.      | } | P. M.—Shop. |
| Steam Engine Design, 3.      |   |             |
| Transmission of Power, 3.    |   |             |
| Thermo-Dynamics, 5.          |   |             |
| Compressed Air Machinery, 2. |   |             |

## WINTER TERM.

|                                        |               |
|----------------------------------------|---------------|
| Thermo-Dynamics, 5.                    | } P. M.—Shop. |
| Heating and Ventilation, 3.            |               |
| Railway and Mechanical Engineering, 2. |               |
| Contracts and Specifications, 1.       |               |
| Seminar, 1.                            |               |
| Engine Design, 3.                      |               |

## SPRING TERM.

|                                        |                                 |
|----------------------------------------|---------------------------------|
| Thesis, 3.                             | } P. M.—Engineering Laboratory. |
| Engineering Design, 2.                 |                                 |
| Electrical Machinery, 3.               |                                 |
| Railway and Mechanical Engineering, 2. |                                 |
| Constitution of the U. S., 4.          |                                 |
| Seminar, 1.                            |                                 |

**General Statement.**—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops and experimental laboratory. The studies of this course, which are in common with other courses, are enumerated and described elsewhere in this catalogue; the others are:

**Drawing.**

Carpentry and Joinery; also wood-working machinery.

Pattern making and foundry work.

Forge work.

Machine and vise work in metals.

Principles of mechanism.

Strength of materials.

Boilers.

The steam engine.

Machine design, machinery and mill work.

**Drawing.**—Free hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems, orthographic and isometric projections and projection of shadows, development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings.

Students are taught how to make careful tracings from their drawings, and from these tracings how to make copies by the blue process; the black process is also taught. Considerable copying of machinery from good examples is required; there are in the drafting room for this purpose, working drawings from prominent manufacturers, and from the engineering department of the United States Navy.

The students receive careful instruction in lettering working drawings, so that in addition to being skillfully lettered, they shall be easily read and understood. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

**Carpentry and Joinery.**—The classroom work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

For the purpose of class-room illustration, the department possesses a good collection of models of the various joints used in timber work in building construction. The strength of various timber joints used in building construction is considered.

**Pattern-Making and Foundry Work.**—The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in the foundry, the proper construction of core boxes and the various materials from which they may be made. Core mixtures, core making, baking and finishing, receive careful consideration. The subject of core ovens is considered with reference to their form, construction and management. Various types of cupola furnaces are discussed, methods of lining, introduction of the blast, the placing of tapping and slag holes, different forms of tuyeres.

**Forge Work** is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening and annealing.

**Machine Work and Vise Work** are taught in a similarly thorough and careful manner.

**Modern Machine Shop Methods and Appliances.**—This subject is taught in the class-room by means of text-books and lectures. The aim is to familiarize the student with up-to-date methods under various conditions of practice and with such machines and appliances as do not come under his immediate observation in our shops.

**Principles of Mechanism** are studied with reference to the combinations of which machines are composed, and the study of designs for the communication of motion by means of gears, belts, links, etc., methods of designing parallel motions, quick return motions and cone pulleys. The adaptation to the formation of gear teeth of the involute, the epicycloid, the logarithmic spiral, and other curves, form an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. In many cases they were constructed by the students from their own designs.

**Strength of Materials** is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns and other structural pieces, tests are made of chains, ropes, cables, solid bars and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws, and strength of bricks, stones, marble, etc.



**Machine Design** is taken up for one term, and the students make designs for screws, bolts, nuts, gears, and complete machines, such as arbor presses, drill presses, lathes, engine, etc. In this connection the students make use of classroom notes, reference books, and notes and sketches made by themselves from their experimental work and their reading.

**Boilers.**—The various forms are carefully studied from the best authors.

The College possesses four steam boilers, to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples, obtained from different sources, of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings, and a large collection of parts of boilers showing conditions incident to boiler management. Injectors, pumps, condensers, feed-water heaters and economizers receive special consideration and are thoroughly investigated.

Chimney draft and mechanical draft are studied and compared with regard to their relative efficiencies.

**The Steam Engine** is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests. Careful attention is given to the study of valves by means of the Zeuner diagrams. Compound and condensing engines are studied with reference to steam distribution and the proper proportion of the various parts. The thermo-dynamics of the steam engine is studied in the Senior year.

There are four steam engines at the College which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These, with what has already been named, form a desirable equipment for the use of the students.

Three of the steam engines are provided with Prony brakes. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was

made for the Department, and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

**Machinery and Mill Work** receive attention, and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied. Important engineering developments, as they occur, are discussed in the classroom in connection with the studies to which they relate.

**Pumping Machinery.**—A study of pumps of different styles and sizes.

**Steam Engine Design.**—It is the endeavor to have this work conform to the best modern practice, and to supplement the instruction given. Blue prints of drawings furnished by prominent manufacturers are used, and show the prevailing forms of engines in use.

**Gas and Oil Engines.**—Theory and construction of gas and oil engines, ignitors, governors, etc.

**Compressed Air Machinery.**—The study of motors, compressors, hoists and various air tools.

**Transmission of Power.**—A study is made of the various forms of power transmission in shops and factories.

**Thermodynamics.**—This includes a study of the laws of thermodynamics, the laws as applied to the steam engine.

**Heating and Ventilation.**—This work includes the study and design of various forms of heating and ventilation in common use in modern buildings.

**Railway Mechanical Engineering.**—The design and construction of locomotives, the operation of the air brake and the study of different forms of signals and switches.

**Specifications and Contracts.**—Complete working drawings for some particular problem are made, the specifications are made, and a form of contract for such a problem is carefully worked out.

**Constructive Engineering.**—The design and arrangement of power plants, shops and factories.

**Electrical Machinery.**—This work embraces the study of various forms of electrical machinery, the adaptability for different purposes, the arrangement of power plants, light plants and the placing of motors for running single machines.

**Metallurgy.**—Under this head is taken up the study of combustion, fuels, furnaces and refractory materials. Especial attention is given to the metallurgy of iron and steel.

**Seminar.**—The Senior students in the Winter and Spring terms use one hour per week for the consideration of articles of interest appearing in the current technical papers and magazines.

**Thesis.**—Each student is assigned a subject which he is to investigate and upon which he must write a satisfactory thesis. He is expected to rely upon himself as much as possible.

**Visits of Inspection.**—During the Senior year the students make visits of inspection to the large industrial establishments of the State in charge of an instructor. These visits are intended to be of educational value, and to supplement the work done at the College, and to show the student the practical application of many things taught in the classroom.

Students are expected to read the current technical literature, and for their accommodation the College library is well supplied with the best engineering papers and magazines.

The shops in connection with the Mechanical Engineering Department are places where principles and operations may be more readily laid hold of and permanently acquired, than any bare demonstration of the classroom could accomplish.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

## COURSE OF LABOR.

|                             |          |
|-----------------------------|----------|
| Bench work in wood.....     | 13 weeks |
| Wood-turning .....          | 13 weeks |
| Pattern-making .....        | 13 weeks |
| Moulding and casting.....   | 13 weeks |
| Iron and steel forging..... | 13 weeks |
| Machine work in metals..... | 13 weeks |
| Vise work in metals.....    | 13 weeks |

**Bench Work in Wood.**—This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First, the use of planes in joining, smoothing and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle. Instruction is given in making glued joints, inlaid and scraped surfaces.

Students usually work from drawings. Cases, benches, boxes, foundry flasks and a variety of other useful articles are made.

**Machine Work in Wood.**—In connection with this course, with the use of tools, is given the most rapid and economical method of selecting and preparing the wood for the machine. There are given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools, and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five-horse power vertical steam engine complete in all its details, a number of drafting tables, boring bars, gears, vises, bells and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.



**Pattern-Making and Foundry Work.**—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft and the best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There are given examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where moulds and cores are made and casings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the moulds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass and other metals and alloys are made for vises, drafting-tables, dynamos, steam engines, engine lathes and other things needed.

**Forge Work.**—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are put to a practical use. Lathe, planer and sharper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers and all bolts, braces and such other iron and steel work as may be needed.

**Machine Work in Metal.**—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals; centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work. Every shop exercise is graded and marked in the same manner as a classroom recitation, each piece of work being regarded as of educational value.

**Practical Mechanics.**—For those whose time and means are limited, a short course in practical mechanics is provided. This



course covers practically the work of the Freshman and Sophomore classes.

The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manufacture salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of how a tool or machine should be used, and the manner of laying out work for it, are thoroughly taught.

Should circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by his training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

**Tool-Room System.**—There is a well-arranged tool-room, fitted up with a check system designed to accustom students to order and neatness and the names of the tools in use.

**Theory and Practice.**—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by, the most practical application of the same in all ways. In every instance where it is possible the work of the classroom is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.

# CIVIL AND IRRIGATION ENGINEERING

## FRESHMAN YEAR.

### FALL TERM.

|                           |   |                                       |
|---------------------------|---|---------------------------------------|
| College Algebra, 5.       | { | P. M.— $\frac{1}{2}$ Mechanical Draw- |
| Rhetoric, 5.              |   | ing.                                  |
| Carpentry and Joinery, 5. |   | $\frac{1}{2}$ Shop.                   |

### WINTER TERM.

|                        |   |             |
|------------------------|---|-------------|
| Trigonometry, 5.       | { | P. M.—Shop. |
| English Literature, 5. |   |             |
| Lettering, 2.          |   |             |
| Rhetoric, 3.           |   |             |

### SPRING TERM.

|                     |   |                                       |
|---------------------|---|---------------------------------------|
| Physics, 5.         | { | P. M.— $\frac{1}{2}$ Physical Labora- |
| Surveying, 5.       |   | tory.                                 |
| College Algebra, 5. |   | $\frac{1}{2}$ Surveying.              |

## SOPHOMORE YEAR.

### FALL TERM.

|                      |   |                  |
|----------------------|---|------------------|
| Field Camp, 2 weeks. | { | P. M.—Surveying. |
| Mechanics, 5.        |   |                  |
| Analytics, 5.        |   |                  |
| Higher Surveying, 5. |   |                  |
| Photography, 1.      |   |                  |

### WINTER TERM.

|                            |   |                   |
|----------------------------|---|-------------------|
| Differential Calculus, 5.  | { | P. M.—Draughting. |
| Mechanics, 5.              |   |                   |
| Irrigation Engineering, 5. |   |                   |

## SPRING TERM.

|                          |   |                   |
|--------------------------|---|-------------------|
| Integral Calculus, 5.    | } | P. M.—Field Work. |
| Hydraulics, 5.           |   |                   |
| Railroad Engineering, 5. |   |                   |
| Seminar, 1.              |   |                   |

## JUNIOR YEAR.

## FALL TERM.

|                                     |   |                                                 |
|-------------------------------------|---|-------------------------------------------------|
| Field Camp, 2 weeks.                | } | P. M.—Chemical Laboratory, 3.<br>Field Work, 2. |
| Strength of Materials, 5.           |   |                                                 |
| Chemistry, 5.                       |   |                                                 |
| Irrigation Development and Laws, 5. |   |                                                 |
| Seminar, 1.                         |   |                                                 |

## WINTER TERM.

|                                  |   |                            |
|----------------------------------|---|----------------------------|
| Chemistry, 5.                    | } | P. M.—Chemical Laboratory. |
| { ½ Materials, of Engineering, 5 |   |                            |
| { ½ Trusses and Bridges, 5.      |   |                            |
| { ½ Meteorology, 5.              |   |                            |
| { ½ Canal Management, 5.         |   |                            |
| Seminar, 1.                      |   |                            |

## SPRING TERM.

|                         |   |                   |
|-------------------------|---|-------------------|
| Hydraulics, 5.          | } | P. M.—Field Work. |
| Trusses and Bridges, 5. |   |                   |
| Geology, 5.             |   |                   |
| Seminar, 1.             |   |                   |

## SENIOR YEAR.

## FALL TERM.

|                      |   |                              |
|----------------------|---|------------------------------|
| Field Camp, 2 weeks. | } | P. M.—Electrical Laboratory. |
| Hydraulics, 5.       |   |                              |
| Logic, 3.            |   |                              |
| Electricity, 5.      |   |                              |
| Mineralogy, 2.       |   |                              |
| Seminar, 1.          |   |                              |

|                                  |   |               |
|----------------------------------|---|---------------|
| Civil Engineering, 5.            | } | P. M.—Design. |
| Engineering Design, 5.           |   |               |
| Political Economy, 3.            |   |               |
| Specifications and Contracts, 2. |   |               |
| Seminar, 1.                      |   |               |

### SPRING TERM.

|                               |   |                    |
|-------------------------------|---|--------------------|
| Thesis, 5.                    | } | P. M.—Engineering. |
| Civil Engineering, 5.         |   |                    |
| Seminar, 1.                   |   |                    |
| Constitution of the U. S., 4. |   |                    |

This course is designed to give the students a good foundation, both theoretical and practical, in civil engineering.

As one of the opportunities for usefulness in Colorado and other Western states is along the lines of irrigation, special attention is paid to hydraulics and to the problems of irrigation.

The Colorado Agricultural College was the first to offer a course in irrigation engineering. The present course is designed to give its graduates the inclination and knowledge necessary to take an active part in irrigation engineering and management.

Especial stress is laid upon field work. Every student who completes the course is intended to have a working knowledge based on long and varied practice with all the ordinary instruments of surveying. In addition to the field practice through the college year, the whole class is taken into the mountains and the whole time given to field practice under actual conditions. In such exercises classes have run lines of levels and transit lines to the top of Long's Peak, an elevation of 14,275 feet. The members of the classes are required to check their work within limits of the most careful work.

The students are also exercised in the use of current meters in measuring water, gaging canals so that they may be prepared to settle some of the vexing problems connected with irrigation.

The College is well supplied with instruments, having six current meters, eight compasses, eight levels, eight transits,

sextants, plane tables, barometers, planimeters, comptometers, odometers, with necessary chains, tapes, rods, etc., for field practice.

The department also has a camping outfit for use in the field.

**Mathematics.**—In Mathematics the students, when entering the Freshman class, are expected to be prepared in geometry and in algebra to quadratics. Two additional terms are devoted to algebra, one to trigonometry, with a view to practice in its application and in computations. Analytical geometry and differential calculus are completed in the Sophomore year, thus laying a foundation for the mechanics of materials, hydraulics, and other technical studies of the subsequent years.

**Drawing.**—Orthographic projection, shades, shadows and lettering are taken up in the Freshman and Sophomore years. In connection with field work, designing plats, plans and working drawing, giving considerable practice in draughting, are required.

**Chemistry.**—Two terms in which chemistry, including general chemistry and elements of inorganic chemistry with laboratory work in blow pipe analysis and qualitative practice are required in the Junior year.

**Physics.**—A preliminary high school course in physics is pre-supposed. This is continued by a term in Freshman year given to heat and electricity. Two terms in the Sophomore year are given to mechanics. Later in the course two terms which may be considered as a part of the study of physics are given to hydraulics, and a term in the Senior year is given to applications of electricity.

**Surveying.**—In the Freshman year land surveying and leveling, and the use of the compass and level as instruments of surveying are taught. The elements of city surveying, topographic, geodetic and hydrographic surveying with theory of instruments used are included in the study of higher surveying in the Senior year. Abundant field practice in the neighborhood surrounding the College which gives varied opportunities for field work.



**Field Work.**—Six weeks are required in practice in the Freshman year. This is supplemented by much other required work of the Sophomore, Junior and Senior years. An important feature of the field work is the practice camp. This is begun one week prior to the opening of the Fall term, and extends through the first week of the Fall term, described more at length later.

**Geology.**—Stratigraphical geology and physiography is enforced by the abundant object lessons in the vicinity.

**Mineralogy.**—This is confined more especially to the study of rocks as adapted to engineering construction.

**Trusses and Bridges.**—The theoretical study of the distribution of stresses in bridges and the methods of calculating them, both numerically and graphically. Much time is given to the actual solution of problems. The study is aided by working drawings and examples of such structures.

**Strength of Materials.**—The first term of this study is more especially given to the mechanics of materials, followed later by a study of the materials of engineering, as brick, stone, concrete, soil, etc., their peculiarities and advantages. The department has a testing machine of 50,000 pounds capacity, and also a cement testing machine of 1,000 pounds testing capacity, to use in laboratory practice.

**Hydraulics.**—The study of hydraulics from the theoretical side takes one term. This extends to the laws of gravity as affecting water, principles governing measurements through orifices, over weirs, channels, etc.; the loss of head through pipes, etc. Special stress is given to those operations which have application to the measurements and methods applicable in irrigation.

**Agricultural Hydraulics.**—In this course the relation of water to the growth of plants as a basis for intelligent irrigation, is considered. The amount of water used by plants; the most favorable amount of moisture in the soil, and the best depths of moisture, and other conditions favorable to plant

growth. The methods and philosophy of irrigation are discussed at length. In another term subsequently, time is given to theoretical hydraulics and experimental investigation. In addition to the current meters, apparatus, and other equipment in this line belonging to the College, the canals and reservoirs on a large scale in the vicinity afford a means of measurement to an extent which no academic equipment could furnish. The College pipe line which brings water from a spring four miles distant, was equipped with piezometer connections at short intervals during construction so that it is an accessory to our hydraulic apparatus as a means of testing friction in pipes. We also have a siphon sixteen inches in diameter and 1,000 feet long and a pipe twelve inches in diameter several thousand feet in length also adapted for study of this character. The hydraulic laboratory also has an equipment of scales, weirs, etc., but the most valuable equipment for the work is found in connection with the neighboring canals. The hydraulic investigations of the corresponding section of the Experiment Station in the different parts of the State also furnish a large amount of data from actual investigation for the use of the more advanced students who are sometimes given opportunities to take part in these investigations.

**Railroad Engineering.**—A term in the Sophomore year is given to the question of tunneling and earthwork, trestling, railroad location and the engineering problems of railroads.

**Meteorology.**—A short course in which it is intended to give methods of observation of meteorological phenomena, a knowledge of the laws of storms, both general and local, and their changes, is taken up in the Winter term of the Junior year.

### IRRIGATION.

Besides the instruction in hydraulics, all of which is of practical import to the engineer or to the agriculturist in Colorado, several terms are devoted to the study of the various phases of the Irrigation question. In the Winter term of the Sophomore year the study of Irrigation Engineering is taken up. The construction of flumes, location and construction of canals, head-gates and other structures are considered. In the Junior year a term is given to the consideration of the development of irriga-

tion, and to the laws of irrigation. This is considered, but with the development of the idea that the present condition of irrigation institutions is an evolution from conditions of different communities, in that our laws have been made to meet the conditions as they have arisen.

**Canal Management.**—In this course it is intended to discuss the problems that arise with canal superintendents and water commissioners whose duties lie in connection with the distribution of water, hence more especial attention is given to problems that concern such officials. Both of these courses are intended to give the student an intelligent knowledge of the problems of such duties as qualify technically for taking part in administration in the distribution of water, when acting as water commissioners or canal superintendents. In order to derive the greatest benefit, these two courses should be taken in connection with the study of hydraulics as included in the other courses.

In the course called Civil Engineering, in two terms of the Senior year, it is intended to include some of the other branches necessary for engineering not included in previous courses. A fuller discussion of road engineering and road making, of city engineering, including construction of city water works, and of other general problems of engineering, will be entered into in this course. In the Winter term of the Senior year considerable time is given to engineering design. It is intended in this course that practical problems of designing and laying out of canals and reservoirs, plans and estimates for flumes, headgates and other constructions shall be worked out. The problems given to students will vary from year to year. Other things being equal, preference will be shown for those problems the solution of which will be of immediate benefit. The intention, however, is to require the students to design and make estimates complete for some particular engineering construction, whether water works, canals, or dams, with the belief that the complete solution of such problems will develop the power of the student to manage other similar problems.

The study of Specifications and Contracts in the Senior year will take up the essential principles of law involved in contracts. There will be discussions on the characteristics of

written and implied contracts. The forms of contracts and the general conditions necessary for correct interpretation will also be considered.

The seminar of the last few years of the course will for a portion of the time include more than is ordinarily included in such terms. In the Sophomore and occasionally in the later years, some time will be given to technical literature. The articles in current periodicals will be read and reported upon by the different members of the class and a general discussion will ensue. As they become more advanced in their course more time will be given to discussions of various engineering questions and to the examination of different problems.

**Photography.**—The ability to use the camera is one of the essential elements in the knowledge of engineering, and a very desirable means of making a record of any kind of work. Each student will be given an opportunity to use the camera and will be given sufficient instruction to understand the principles of photography.

**Field Camp.**—Each student in the Engineering course reports on Friday, ten days before the opening of the Fall term, for field practice. The benefits of such work have been so marked that this exercise is considered as an essential part of the course and is required of such students after the first year.

In order to remove distracting surroundings as well as to include excellent field opportunities, the classes go far into the mountains. The encampment lasts for two weeks, and is in charge of the Professor of Engineering and competent assistants. For the past two years Estes Park and the vicinity of Long's Peak was selected as affording a variety of topographical conditions; from comparative plains to some of the roughest regions in the Rocky Mountains; with streams and abundant choice for both easy and difficult problems of field work. An additional reason for choice has been that notwithstanding the wildness of the country, the party has been within easy reach of daily mail, telephone, store and physician. Camps were formed at elevations of from 7,500 to 12,000 feet above sea level. Level and transit lines were run to the top of Long's Peak at an elevation of 14,275 feet. While there has been hard work, such is to



be expected and is welcomed by every earnest student. The trips have also been the source of much pleasure. The students returned in vigorous physical condition, prepared for the remainder of the college year. The College supplies part of the permanent equipment. Each student furnishes his bedding and personal needs. The party divides in the expense of transportation, cook and provisions pro rata. The cost has been about \$5.00 each per week, or about the same as would be the cost in town, excluding equipment.

In the Senior year each student candidate for graduation will be expected to prepare a thesis containing the results of some original investigation on some question pertaining to Engineering or Irrigation.



# ELECTRICAL ENGINEERING COURSE

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## FRESHMAN.

### FALL TERM.

|                           |   |                                       |
|---------------------------|---|---------------------------------------|
| College Algebra, 5.       | } | P. M.—French, 2.                      |
| Rhetoric, 5.              |   | $\frac{1}{2}$ Mechanical Drawing, 10. |
| Carpentry and Joinery, 5. |   | $\frac{1}{2}$ Shop (Wood Room), 10.   |

### WINTER TERM.

|                        |   |                       |
|------------------------|---|-----------------------|
| Trigonometry, 5.       | } | P. M.—French, 2.      |
| English Literature, 5. |   | Shop (Wood Room), 10. |
| Mechanical Drawing, 2. |   |                       |
| Rhetoric, 3.           |   |                       |

### SPRING TERM.

|                     |   |                                        |
|---------------------|---|----------------------------------------|
| Physics, 5.         | } | P. M.—French, 2.                       |
| Surveying, 5.       |   | $\frac{1}{2}$ Physical Laboratory, 10. |
| College Algebra, 5. |   | $\frac{1}{2}$ Surveying, 10.           |

## SOPHOMORE.

### FALL TERM.

|                          |   |                   |
|--------------------------|---|-------------------|
| Mechanics, 5.            | } |                   |
| Analytics, 5.            |   | P. M.—French, 2.  |
| Drawing, 2.              |   | Shop (Forge), 10. |
| Descriptive Geometry, 3. |   |                   |

WINTER TERM.

|                                        |   |                                          |
|----------------------------------------|---|------------------------------------------|
| Differential Calculus, 5.              | } | P. M.—French, 2.<br>Shop (Machine Room). |
| Elements of Electrical Engineering, 3. |   |                                          |
| Descriptive Geometry, 3.               |   |                                          |
| Drawing, 2.                            |   |                                          |

SPRING TERM.

|                                        |   |                                              |
|----------------------------------------|---|----------------------------------------------|
| Integral Calculus, 5.                  | } | P. M.—French, 2.<br>Shop (Machine Room), 10. |
| Elements of Electrical Engineering, 3. |   |                                              |
| Drawing, 5.                            |   |                                              |
|                                        |   |                                              |

JUNIOR.

FALL TERM.

|                             |   |                                                            |
|-----------------------------|---|------------------------------------------------------------|
| Principles of Mechanism, 5. | } | P. M.—Chemical Laboratory, 6.<br>Strength of Materials, 4. |
| Strength of Materials, 5.   |   |                                                            |
| Chemistry, 5.               |   |                                                            |

WINTER TERM.

|                               |   |                                |
|-------------------------------|---|--------------------------------|
| Chemistry, 5.                 | } | P. M.—Chemical Laboratory, 10. |
| Drawing, 3.                   |   |                                |
| Dynamo and Motor Practice, 2. |   |                                |
| Steam Boilers, 5.             |   |                                |

SPRING TERM.

|                               |   |                                                   |
|-------------------------------|---|---------------------------------------------------|
| Steam Engine, 5.              | } | P. M.—E. E. Laboratory, 4.<br>Electric Design, 6. |
| Dynamo and Motor Practice, 2. |   |                                                   |
| Electric Lighting, 5.         |   |                                                   |
| Telegraph and Telephone, 3.   |   |                                                   |

**SENIOR.****FALL TERM.**

|                                  |   |                                                   |
|----------------------------------|---|---------------------------------------------------|
| Electric Power, 2.               | } | P. M.—E. E. Laboratory, 6.<br>Electric Design, 4. |
| Steam Engine Design, 3.          |   |                                                   |
| Electric Distribution, 3.        |   |                                                   |
| Thermo-Dynamics, 5.              |   |                                                   |
| Alternators and Transformers, 2. |   |                                                   |

**WINTER TERM.**

|                                  |   |                                                   |
|----------------------------------|---|---------------------------------------------------|
| Thermo-Dynamics, 5.              | } | P. M.—E. E. Laboratory, 6.<br>Electric Design, 4. |
| Alternators and Transformers, 3. |   |                                                   |
| Electric Railways, 3.            |   |                                                   |
| Seminar, 1.                      |   |                                                   |
| Engine Design, 3.                |   |                                                   |

**SPRING TERM.**

|                            |   |                                                    |
|----------------------------|---|----------------------------------------------------|
| Thesis, 5.                 | } | P. M.—M. E. Laboratory, 4.<br>E. E. Laboratory, 6. |
| Constitutional History, 4. |   |                                                    |
| Seminar, 1.                |   |                                                    |
| Alternating Currents, 5.   |   |                                                    |
| Electrical Machinery, 3.*  |   |                                                    |

\*For Seniors of Mechanical Engineering Course.

## ELECTRICAL ENGINEERING

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This course is designed for those who wish to prepare themselves for the profession of Electrical Engineering. It is imperative that the practical engineer should be familiar with the principles of machinery and methods of Machine Construction. For this reason this course contains much that belongs to the Mechanical Engineering Course. The extensive application of electricity to the various industries requires that a course in Electrical Engineering furnish the most thorough instruction in the principles of electricity and magnetism. This instruction is given by means of text-books, lectures and laboratory work.

The Department is well equipped with apparatus by means of which electricity and magnetism can be studied experimentally.

Lectures, from time to time, by prominent engineers, and inspection trips to representative power and lighting plants will constitute an important feature of the Department's work.

The studies included in this course, but which are common to other courses, are described in their appropriate places elsewhere in this catalogue. The course of instruction belonging to this department alone is as follows:

**Elements of Electrical Engineering.**—General principles and laws of electricity and magnetism, measurements of electric and magnetic quantities, application of these principles, elementary study of the dynamo-electric machine.

Three hours a week during the winter and spring terms, sophomore year.

**Dynamo and Motor Practice.**—The principles, design, construction and operation of dynamos and motors.

Two hours a week during the winter and spring terms, junior year.

**Electric Lighting.**—The design, installation and operation of the various systems of electric lighting. The plant, transmission line, sub-stations, distribution, wiring, etc., are considered.

Five hours a week during the spring term, junior year.

**Telegraphy and Telephony.**—Methods and instruments employed in telegraphy, telephony and electric signaling. Design and installation of central telephone exchanges, multiplex and wireless systems of telegraphy.

Three hours a week during the spring term, junior year.

**Electric Power.**—The utilization of electric energy in machine shop and factory. The best type of motor for any given condition. The different methods of motor drivers.

Two hours a week during the fall term, senior year.

**Electric Distribution.**—Principles and methods by which transmission and distribution of direct and alternating currents are effected. Voltage and current regulation, etc.

Three hours a week during the fall term, senior year.

**Alternators and Transformers.**—The principles and design of alternating current machinery and transformers. Types of transformers, rotary converters, double current generators, insulation, etc.

Two hours a week during the fall term and three hours a week during the winter term, senior year.

**Electric Railways.**—Design, installation and operation of electric railway systems, including surface, elevated and underground systems, urban and interurban systems.

Three hours a week during the winter term, senior year.

**Alternating Currents.**—Mathematical investigation of alternating currents, following Steinmetz's method of treatment.

Five hours a week during the spring term, senior year.

**Seminar.**—Reading and discussion of electrical technical journals, institute papers, and other Electrical Engineering literature.

One hour a week during the winter and spring terms, senior year.

**Electric Design.**—Design of electrical apparatus, dynamos and motors with full working drawings and calculations.

Six hours a week during the fall and winter terms, junior year. Four hours a week during the fall and winter terms, senior year.

**Electrical Engineering Laboratory.**—Measurement of resist-



ance, current, voltage, insulation, capacity, etc. Determination of efficiency of dynamos and motors. Plotting characteristic and hysteresis curves. Experiments with alternating currents, transformers, and measuring apparatus.

Experiments with polyphase currents and construction of diagrams, etc.

Four hours a week during the spring terms, junior year. Six hours a week during the fall, winter and spring term, senior year.

**Thesis.**—On the completion of the prescribed course in Electrical Engineering, candidates for a degree must submit a satisfactory thesis on some approved electrical subject. The thesis may be an experimental investigation, or a design of some electric machine, or distribution or power system.

## CHEMISTRY AND GEOLOGY

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**Chemistry.**—The prescribed course of study in this subject is taken by the students of all courses. It has been planned to include no more of the science than is advisable for a collegiate course, the object being to present the principles of the science and such facts as are necessary for a reasonably thorough understanding of these principles.

The means employed in giving instruction are recitations, lectures and laboratory practice. Our aim is to give the student the benefit of the discipline of the recitation system, the illustration of the lecture and the inductive system of the laboratory. The object aimed at is wholly educational and is included in an acquaintance with the scope and character of the science, the necessity of a clear perception of facts and an exact statement of the same; also the importance of neatness and exactness. The latter are obtained by requiring all experiments to be done quantitatively, first requiring the student to calculate the result which should be obtained, and testing his work by the agreement of the actual results with the calculated one.

Laboratory practice is not begun until the student has received sufficient instruction in stoichiometric calculation, and the general properties of acids, bases and salts, to make him to fully comprehend the simple problems given in illustration of the general principles of Chemistry.

The instruction during the first term covers the general principles of Chemistry and the Chemistry of the not-metals. The Chemistry of the metals is given by lectures. Organic Chemistry is taken up during the second term and the fatty compounds completed.

Agricultural Chemistry is taught by lectures and the textbook. Johnston's **Agricultural Chemistry**, edited by Professor Aikman, being used as a text. The lectures embrace, particularly, soil chemistry, manures and fodders.

The laboratory practice is the same for students of all courses up to the completion of the qualitative analysis; from this point on the work is adapted to the objects the student has

in view and to his proficiency. While the student's wishes are considered, the selection of the work is made by the professor in charge.

No instruction is given in assaying, as this line of work lies without our province and is provided for by other State institutions.

The laboratory is well lighted, heated and ventilated; it is supplied with all that is necessary for a very extended course in qualitative and quantitative analysis. For fuller description, see Buildings and Equipment.

**Geology.**—Two terms of the Junior year, the Winter and Spring, are devoted to this study. The relation of geology to the soil is more fully discussed in the Spring term of the Senior year in connection with Agricultural Chemistry. Elementary Geology is taken up in the Winter term of the Junior year and systematic Geology in the Spring term.

The illustrative material at our command is fuller than usual and of most excellent grade. Of lithological material, we have about nine hundred specimens of good cabinet size,  $3 \times 4\frac{1}{2}$  inches, representing all the important classes of rocks and many of the varieties. This collection of rocks is supplemented by a good working collection of the most important rock-forming minerals, and a small collection of sections serving to show the microscopic structure of the various classes of rocks and the optical properties of their component minerals. Economic Geology is represented by collections of ores, of which those of iron, lead and silver and copper are representative, and further by a large collection of ornamental materials, marbles, serpentines and porphyries. This collection consists of polished specimens. Many of them are large and all of them choice, making a very beautiful and attractive collection. Historical Geology is represented by a collection of seven hundred and fifty fossils and forty casts. These fossils illustrate the life of every geological age and period. Those of the Mesozoic and Cenozoic are, for the greater part, foreign, while those of the Paleozoic are mostly from American localities.

# GENERAL AND DOMESTIC SCIENCE

## FRESHMAN YEAR.

### FALL TERM.

College Algebra, 5.  
Rhetoric, 5.

} P. M.— $\frac{1}{2}$  Pattern Drafting  
and Plain Sewing.  
 $\frac{1}{2}$  Canning and Pre-  
serving.  
German, 5.

### WINTER TERM.

Trigonometry, 5.  
English Literature, 5.  
Rhetoric, 3.  
Themes, 2.

} P. M.— $\frac{1}{2}$  Millinery and  
Embroidery.  
 $\frac{1}{2}$  English Consulta-  
tion.

### SPRING TERM.

Physics, 5.  
German, 5.  
Household Hygiene or College  
Algebra, 5.

} P. M.— $\frac{1}{2}$  Drawing and Reci-  
tation.  
 $\frac{1}{2}$  Physical Labora-  
tory.

## SOPHOMORE YEAR.

### FALL TERM.

Mediaeval Institutions, 2.  
Heat, 3.  
Zoology, 3.  
History of Architecture, 2.  
Discussion or Analytics, 5.

} P. M.—Zoological Labora-  
tory, 2.  
Dressmaking, 3.

### WINTER TERM.

English History, 3.  
Commercial Law, 5.  
Astronomy or Calculus, 5.  
Zoology, 2.

} P. M.—Zoological Labora-  
tory, 3.  
Library Science, 2.

SPRING TERM.

|                               |   |                                                     |
|-------------------------------|---|-----------------------------------------------------|
| Dairying or Calculus, 5.      | } | P. M.—Histology, 2.<br>Entomological Laboratory, 3. |
| The Drama, 3.                 |   |                                                     |
| Chemistry, 3.                 |   |                                                     |
| Entomology and Beekeeping, 4. |   |                                                     |

JUNIOR YEAR.

FALL TERM.

|                                                           |   |                                                                                      |
|-----------------------------------------------------------|---|--------------------------------------------------------------------------------------|
| $\frac{1}{2}$ Physiology, 5; $\frac{1}{2}$ Physiology, 3. | } | P. M.— $\frac{1}{2}$ Horticultural Laboratory.<br>$\frac{1}{2}$ Chemical Laboratory. |
| $\frac{1}{2}$ Landscape Gardening, 2.                     |   |                                                                                      |
| Horticulture, 5.                                          |   |                                                                                      |
| Chemistry, 5.                                             |   |                                                                                      |

WINTER TERM.

|                                        |   |                            |
|----------------------------------------|---|----------------------------|
| $\frac{1}{2}$ Floriculture, 5.         | } | P. M.—Chemical Laboratory. |
| $\frac{1}{2}$ Chemistry of Cooking, 5. |   |                            |
| Advanced History, 3.                   |   |                            |
| Pattern Drafting, 2.                   |   |                            |
| Chemistry, 5.                          |   |                            |

SPRING TERM.

|                      |   |                                                                 |
|----------------------|---|-----------------------------------------------------------------|
| Home Nursing, 4.     | } | P. M.— $\frac{1}{2}$ Art Needle Work.<br>$\frac{1}{2}$ Library. |
| Geology, 5.          |   |                                                                 |
| Psychology, 3.       |   |                                                                 |
| Advanced History, 3. |   |                                                                 |

SENIOR YEAR.

FALL TERM.

|                                |   |               |
|--------------------------------|---|---------------|
| Bacteriology, 3.               | } | P. M.—Sewing. |
| Logic or International Law, 3. |   |               |
| Literature, 2.                 |   |               |
| Philosophy of Home Making, 4.  |   |               |
| Sociology, 3.                  |   |               |
| Thesis.                        |   |               |



## WINTER TERM.

Political Economy, 3.  
 Embryology, 2.  
 Literature, 2.  
 Evolution, 1.  
 Science of Nutrition, 4.  
 Thesis.

P. M.—Embryological  
 Laboratory, 3.  
 Cooking, 2.

## SPRING TERM.

$\frac{1}{2}$  Fiction, 5.  
 $\frac{1}{2}$  Special Lectures, 5.  
 Recent History, 3.  
 Ethics, 3.  
 Constitution of the U. S., 4.  
 Thesis.

P. M.—Advanced Needle  
 Work.

The establishment of the Department of Domestic Science in the Colorado Agricultural College was the outgrowth of the conviction that the education of a young woman is no more complete without training in the domestic arts and underlying sciences than is the education of a young man without training in the practical arts of life.

Knowledge is an excellent thing; but knowledge and the acquired skill to apply that knowledge are infinitely better. To know what to do is important; to know the same thing, and in addition to have skill in doing it, is reaching out and taking hold of the best.

Thus committed to the doctrine that true education should include, and in fact does include, culture of the moral and mental powers in connection with the practical training in the industrial arts, the State Board of Agriculture illustrated its theory in the founding of this Department in June, 1894.

The following fall witnessed the opening of the old Horticultural building under a new name with a purpose of making this feature a great success.

The appreciation of this work is manifest in the fact that since its introduction the number of young ladies in the College has more than doubled. Since the majority of young ladies will

be homemakers, this subject is of paramount importance. Through this training that which seemed drudgery is transformed into an attractive, elevating and very useful art.

The course includes lectures and classroom recitations, found in the following subjects:

**I. Hygiene and Sanitation.**—This subject is taken up at the beginning of the Spring term of the Freshman year. The textbook used is a collection of **Public Health** essays relating chiefly to the home and school, and are classified in this way:

1. Study of the Home.

(a) Selection of Location.

(b) The building of the home, from foundation to attic, including materials used, the plumbing, heating, lighting, ventilation, etc.

(c) The surroundings: lawns, trees and shrubbery; emphasizing sanitary and hygienic conditions.

(d) Furnishing the home for the purposes of convenience, adornment and the happiness of the inmates.

2. The use of Disinfectants.

3. Individual Prophylaxis Against Disease.

4. School Hygiene.

5. Foods.

6. Preventable Causes of Disease.

**II. Emergencies, Conversation, Etc.**—During the Fall term of the Sophomore year the leading aim is to teach self-reliance, presence of mind, an interest in general subjects, and to train the student to express herself concisely, intelligently and entertainingly.

The scheme is varied for each day in the week. Tuesdays are devoted to emergencies. To illustrate: One subject taken is the resuscitation of the apparently drowned. While in all cases of accident a physician should be called, the attendant may be of great use while the physician is coming. On Wednesdays the subjects always relate to the human organism. For instance, the skin is studied under the divisions of functions and care. Thursdays each young woman is required to prepare for the class an item of interest that belongs to the general subject of Home Science. The lesson for Friday morning is one of great import-

ance. Some subject for discussion is announced one week in advance, with a member of the class as leader. For twenty minutes the one in charge presides; then the instructor takes the chair and recapitulates, adding and modifying wherever necessary.

Since the art of conversation has been very much neglected in recent years, the young women appreciate this opportunity of giving special attention to so valuable and cultivating a subject, particularly since it is absolutely indispensable in the well-ordered home.

**III. Chemistry of Cooking and Cleaning.**—In the Winter term of the Junior year the subject considered is the Chemistry of Cooking and Cleaning. The practice of cooking can not be carried on successfully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The work of this term tends to lift the veil of mystery from many kinds of housework, and to fill the mind of the student with a broader conception of her sphere as a homemaker. Moreover, the actual performance of the labor is materially lessened when these subjects are properly understood.

**IV. Home Nursing.**—At the opening of the Spring term, Junior year, Week's Text-Book on Nursing is placed in the hands of the class, and as thorough investigations and study as possible without clinical practice is carried forward. In all of these lines attention is given to the subject of micro-organisms, as the knowledge of them and their functions is variously related to the matters under consideration.

**V. The Philosophy of Home Making.**—This study has been added to the course this year and is designed to treat the whole province of the home from a philosophical standpoint. Fall term, Senior year.

**VI. Science of Nutrition.**—During the Winter term of the Senior year the Science of Nutrition is studied with Atwater's Chemistry and Economy of Food. Bulletin No. 21, of the Office of Experiment Stations, Washington, D. C., is taken as the basis. Much supplementary reading is required, and the study of dietaries is made an important feature of this division.

**VII. Studies in Hygienic and Artistic Pattern Drafting.**—The human form is to be studied with health, beauty and utility in view, in the making of patterns and clothing. Winter term, Junior year.

**VIII. Lectures.**—These are given by specialists and are of great importance to young women in organizing and conducting their own homes. Spring term, Senior year.

**Sewing.**—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery and millinery. Everything is done systematically and methodically, and not for a moment is sight lost of the high educational value of this training. Special instruction is given in dressmaking. Notwithstanding the fact that no student is required to purchase material for sewing, it is invariably done, because in so doing she is entitled to the product of her labor.

**The Kitchen.**—The work in the kitchen laboratory includes the study of foods, with practice in all kinds of cooking and laundering. How to serve food; the care of the table linen; the arrangement of dining tables for all occasions, and how to make all kinds of food serve their best purposes at the least cost, are among the subjects considered.

**Housekeeping.**—Since the building in which Domestic Science is taught is furnished, as far as possible, as a home would be, actual work in housekeeping is carried on. Sweeping, washing of wood and glass, as well as dusting, form a part of each student's duties.

**General Topics.**—A lecture is given on each Monday afternoon on some topic relating to the care of the house, clothing, or person; social duties; customs, customs of good society and anything that will aid in the development of a perfect womanhood.

**Thesis.**—The subject for thesis must be chosen after consultation with the head of the department not later than Oct. 15, of the Senior year. The thesis must record the result of original investigation of some subject, and must be approved by the head of the department directing such work, and filed with the Secretary of the Faculty not later than May 15, of the Senior year.



## VETERINARY SCIENCE

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### FRESHMAN YEAR.

#### FALL TERM.

|                           |   |                               |
|---------------------------|---|-------------------------------|
| Veterinary Elements, 5.   | } | P. M.— $\frac{1}{2}$ Drawing. |
| Rhetoric, 5.              |   | $\frac{1}{2}$ Shop.           |
| Carpentry and Joinery, 5. |   | Clinics Wednesdays.           |

#### WINTER TERM.

|                         |   |             |
|-------------------------|---|-------------|
| Veterinary Elements, 5. | } | P. M.—Shop. |
| English Literature, 5.  |   |             |
| Rhetoric, 3.            |   |             |
| Themes, 2.              |   |             |

#### SPRING TERM.

|                |   |                                           |
|----------------|---|-------------------------------------------|
| Anatomy, 5.    | } | P. M.— $\frac{1}{2}$ Physical Laboratory. |
| Accounting, 5. |   | $\frac{1}{2}$ Surveying.                  |
| German, 5.     |   | Clinics Wednesdays.                       |

### SOPHOMORE YEAR.

#### FALL TERM.

|                         |   |                                 |
|-------------------------|---|---------------------------------|
| Anatomy, 5.             | } | P. M.—Zoological Laboratory, 2. |
| Dairying, 5.            |   | Dairying Laboratory, 3          |
| Zoology, 3.             |   | Clinics Wednesdays.             |
| Veterinary Elements, 2. |   |                                 |

#### WINTER TERM.

|                     |   |                                 |
|---------------------|---|---------------------------------|
| Materia Medica, 5.  | } | P. M.—Zoological Laboratory, 3. |
| Zoology, 2.         |   | Clinics, 2.                     |
| Stock-Breeding, 5.  |   |                                 |
| English History, 3. |   |                                 |



SPRING TERM.

|                    |   |                            |
|--------------------|---|----------------------------|
| Chemistry, 3.      | } | P. M.—Dissection and Clin- |
| Farm Buildings, 5. |   | ics, 3.                    |
| Materia Medica, 5. |   | Histology, 2.              |

JUNIOR YEAR.

FALL TERM.

|                                                     |   |                    |
|-----------------------------------------------------|---|--------------------|
| ½ Theory and Practice of<br>Veterinary Medicine, 2. | } | P. M.—½ Clinics.   |
| Chemistry, 5.                                       |   | ½ Chemical Labora- |
| ½ Physiology, 5.                                    |   | tory.              |
| ½ Physiology, 3.                                    |   |                    |
| Anatomy, 5.                                         |   |                    |

WINTER TERM.

|                                                   |   |                          |
|---------------------------------------------------|---|--------------------------|
| Anatomy, 5.                                       | } | P. M.—Physiological Bot- |
| Chemistry, 5.                                     |   | any, 3.                  |
| Theory and Practice of<br>Veterinary Medicine, 5. |   | Chemical Labora-         |
|                                                   |   | tory, 2.                 |

SPRING TERM.

|                                                     |   |                            |
|-----------------------------------------------------|---|----------------------------|
| Comparative Anatomy, 2.                             | } | P. M.—Dissection and Clin- |
| Operative Surgery, 3.                               |   | ics.                       |
| Animal Parasites, 1.                                |   |                            |
| Theory and Practice of<br>Veterinary Medicine, 5.   |   |                            |
| Principles and Practice Veter-<br>inary Surgery, 4. |   |                            |

SENIOR YEAR.

FALL TERM.

|                                                     |   |                            |
|-----------------------------------------------------|---|----------------------------|
| General Pathology, 3.                               | } | P. M.—Dissection and Clin- |
| Bacteriology, 3.                                    |   | ics.                       |
| Chemistry, 5.                                       |   |                            |
| Principles and Practice Veter-<br>inary Surgery, 4. |   |                            |

## WINTER TERM.

|                                                   |   |                                                   |
|---------------------------------------------------|---|---------------------------------------------------|
| Evolution of Animals, 3.                          | } | P. M.—Clinics, 2.<br>Embryological Laboratory, 3. |
| Special Pathology, 5.                             |   |                                                   |
| Therapeutics, 3.                                  |   |                                                   |
| Principles and Practice of Veterinary Surgery, 2. |   |                                                   |
| Embryology, 3.                                    |   |                                                   |

## SPRING TERM.

|                           |   |                               |
|---------------------------|---|-------------------------------|
| Constitution of U. S., 4. | } | P. M.—Dissection and Clinics. |
| Special Pathology, 5.     |   |                               |
| Therapeutics, 4.          |   |                               |
| Obstetrics, 2.            |   |                               |

Veterinary Science has within the last decade assumed a wide and important sphere of usefulness; formerly it implied simply the treatment of domesticated animals for the common accidents and ailments, for reasons wholly pecuniary or humanitarian, and incidentally furnished the most unhampered opportunity for the exercise of superstition and the practice of charlatanism. Now it has come to be recognized as a true science, with importance second to none, as it deals more directly with contagious diseases and their relation to the public health.

The assumption of this new role is coeval with, and the inevitable consequence of, the advent of the germ theory of disease. Micro-organisms which are responsible for our many ills, must be studied in the lower animals as well as in man, for here we find them in the greatest variety and virulency.

It cannot be denied that prophylaxy belongs to the broad field of comparative medicine, and that its two branches, human and veterinary, are inseparable. This bond of inseparable usefulness in the protection of the public health has been sealed by the anti-toxin principle of serum therapy. The immunizing of animals against fatal contagious diseases; the certain detection of latent diseases which cannot be known by physical symptoms, and their early isolation or destruction before they have spread disease germs among their kind, or as in many cases to the human. Also the cure of some diseases and the immense possi-

bilities yet in store by the administration of repeated doses of the attenuated virus; the prevention of disease, which has long been in vogue to a limited extent, by an early administration are phases of the role of Veterinary Science of today, and afford us a brief glimpse of its possibilities.

Livestock being one of the principal industries of this State, it is the purpose of Veterinary Science in this institution not only to give a most thorough course of instruction but to stand for everything that can advance this ever-increasing and important industry. More specifically its province lies in the direction of the handling and treatment of livestock from the standpoint of disease, prophylaxy and treatment.

The curriculum is so arranged that students from the other courses can elect Veterinary Science at the beginning of the Junior year, and those of the course in Agriculture can elect it in part during the Senior year.

**Dissections and Clinics.**—The well-equipped dissecting rooms, and the free clinics afternoons of every term after the Freshman year, furnish abundant material for practical work. This work is under the immediate supervision of Dr. Glover. The College being situated in an extensive stock-growing district is especially favored in this respect. Not only horses, but all species of animals are brought in for treatment.

Besides this the College herd, which every season is being greatly improved and enlarged, is one of the finest in America, and of itself furnishes ample material for classroom demonstration, and requires the constant attention of the Veterinarian.

**Operative Surgery.**—It is in this line of surgery that the Veterinarian has more to do than in any other.

Operations of every description are performed for the benefit of the class at the hours of free clinics throughout the entire course. The more advanced students are required to perform ordinary operations such as would be found necessary in Veterinary practice.

The subject is also taught by text-book in the Senior year.

**General and Special Pathology.**—This work is taken up during the Senior year, after a thorough course in Physiology and Histology. The subject is taught by text-book, supplemented by

lectures. First the elementary morbid processes generally, macroscopic and microscopic inflammation and its accompanying phenomena, infiltration, resolution, thrombosis, embolism degeneration, atrophy, hypertrophy, necrosis, gangrene, hyperaemia, hemorrhage, tumor formations, etc.

Later the study of special pathology is taken into consideration, that is, the diseases peculiar to particular tissues or organs.

**Materia Medica.**—This is taught throughout the Junior year and in the first term of the Senior by text-book (Finlay Dunn) with samples of the drugs exhibited to the students, who are required to inspect and handle them until they become intimately acquainted with the leading properties of all the principal drugs.

**Obstetrics.**—This subject is taken up during the last term of the Senior year, and is taught by two lectures a week. Fleming's *Obstetrics* is used for reference. It includes a review of the reproductive organs, gestation, dystocia, accidents during parturition, obstetric operations, hygiene of pregnant animals, etc.

**Anatomy of the Domesticated Animals.**—This subject is treated throughout the Junior year by text-books (Chauveau) and supplemented by demonstrations from mounted skeletons, prepared specimens, charts and dissections. During the last term of the Junior year special work in comparative anatomy is given under the direction of Prof. C. P. Gillette.

**Therapeutics.**—This subject is taught by text-book during the Senior year. It embraces in the case of each particular drug pharmacy, physiological action, therapeutical action, toxic action, antidotes, administration, dosage, antagonists, and incompatibles.

This course is supplemented by prescription writing, which is begun earlier in the course in the study of *Materia Medica*.

# ARCHITECTURE

## FRESHMAN YEAR.

### FALL TERM.

|                             |   |                          |
|-----------------------------|---|--------------------------|
| College Algebra, 5.         | } | P. M.—Elementary Design, |
| Rhetoric, 5.                |   | 3.                       |
| History of Architecture, 2. |   | Construction Draw-       |
| Construction, 3.            |   | ing, 2.                  |

### WINTER TERM.

|                  |   |                          |
|------------------|---|--------------------------|
| Trigonometry, 5. | } | P. M.—Construction Draw- |
| Construction, 5. |   | ing, 5.                  |
| Rhetoric, 3.     |   |                          |
| Drawing, 2.      |   |                          |

### SPRING TERM.

|                     |   |                                       |
|---------------------|---|---------------------------------------|
| Physics, 5.         | } | P. M.— $\frac{1}{2}$ Physical Labora- |
| Surveying, 5.       |   | tory.                                 |
| College Algebra, 5. |   | $\frac{1}{2}$ Surveying.              |

## SOPHOMORE YEAR.

### FALL TERM.

|                             |   |                           |
|-----------------------------|---|---------------------------|
| Mechanics, 5.               | } | P. M.—Orders of Architec- |
| Analytics, 5.               |   | ture.                     |
| History of Architecture, 2. |   |                           |
| Descriptive Geometry, 3.    |   |                           |

### WINTER TERM.

|                             |   |                           |
|-----------------------------|---|---------------------------|
| Differential Calculus, 5.   | } | P. M.—Orders of Architec- |
| Perspective, 4.             |   | ture.                     |
| History of Architecture, 3. |   | Renaissance Design.       |
| Descriptive Geometry, 3.    |   |                           |



## SPRING TERM.

|                                              |   |                                        |
|----------------------------------------------|---|----------------------------------------|
| Integral Calculus, 5.                        | } | P. M.—Romanesque and<br>Gothic Design. |
| Planning and Requirements of<br>Building, 5. |   |                                        |
| Architectural Composition, 3.                |   |                                        |
| Perspective, 2.                              |   |                                        |

## JUNIOR YEAR.

## FALL TERM.

|                                       |   |                                    |
|---------------------------------------|---|------------------------------------|
| Chemistry, 5.                         | } | P. M.—Chemical Labora-<br>tory, 3. |
| $\frac{1}{2}$ Landscape Gardening, 2. |   |                                    |
| Strength of Materials, 5.             |   |                                    |
| Residence Construction, 3.            |   |                                    |

## WINTER TERM.

|                                            |   |                            |
|--------------------------------------------|---|----------------------------|
| Chemistry, 5.                              | } | P. M.—Chemical Laboratory. |
| $\frac{1}{2}$ Trusses and Bridges, 5.      |   |                            |
| $\frac{1}{2}$ Materials of Engineering, 5. |   |                            |
| Estimating, 2.                             |   |                            |

## SPRING TERM.

|                                  |   |                  |
|----------------------------------|---|------------------|
| Specifications and Contracts, 3. | } | P. M.—Design, 5. |
| Trusses and Bridges, 5.          |   |                  |
| Geology, 5.                      |   |                  |
| Superintendence, 2.              |   |                  |

## SENIOR YEAR.

## FALL TERM.

|                              |   |                        |
|------------------------------|---|------------------------|
| Composition of Ornaments, 7. | } | P. M.—Advanced Design. |
| Electricity, 5.              |   |                        |
| Thesis, 2.                   |   |                        |
| Seminar, 1.                  |   |                        |

WINTER TERM.

|                               |   |                                 |
|-------------------------------|---|---------------------------------|
| Sanitary Construction, 2.     | } | P. M.—Thesis, 3.<br>Drawing, 2. |
| Heating and Ventilation, 3.   |   |                                 |
| Pen and Ink Drawing, 5.       |   |                                 |
| Architectural Engineering, 5. |   |                                 |

SPRING TERM.

|                           |   |               |
|---------------------------|---|---------------|
| Constitution of U. S., 4. | } | P. M.—Thesis. |
| Working Drawings, 6.      |   |               |

It is so clearly under the provision of all the acts, Federal and State, relating to Agricultural and Mechanical Colleges, to provide the youth of the land with such theoretical and technical education as shall make them educated and skilled workmen of high order, that the State Board of Agriculture has decided to introduce the foregoing course in Architecture.

The immediate future of Colorado will lay great demands upon young men skilled in making plans for, and superintending the building of artistic and convenient homes and permanent public and business buildings.

The aim of this course is to secure to its graduates an ample preparation for the demands of the best professional practice. To that end, its course of study combines thorough professional training with the essentials of a liberal education, being so framed that the student may acquire thorough skill in draughtsmanship, combined with a critical taste and creative resource in design and sound judgment in construction.

To accomplish these results, the course is so arranged as to present architecture as an art, which, while inseparable from sound construction and obedience to utility, yet lies above and beyond these attributes in the field of the Fine Arts proper. The most important division of the professional work pertains, therefore, to design; and to this subject, in its various phases, the relatively largest portion of the student's time is devoted throughout the course. Careful attention is given to subjects comprehended under the term "Architectural Engineering," comprising pure and applied science, the nature of materials and the theory and practice of construction and of sanitation.

Draughtsmanship receives constant attention throughout the course, not only in drawing incident to the Design Courses, but also in various lines of instruction in pure drawing.

The purely professional work of the course thus outlined covers some three-fourths of the time required of the student; the remaining portion being devoted to strictly liberal studies.

The study of Architecture, as here presented, while essential to a proper architectural training, has also strong claims of value as a means of liberal culture, if, together with the purely collegiate branches, consideration be given to that basic element in the professional curriculum which pertains especially to the art of Architecture.

Architectural Engineering, while not a distinct course, is presented in its essential elements.

Drawing in its numerous forms is esteemed as a means of cultivating the perspective facilities, but its great value lies in its peculiar effect in the development of taste, imagination and the faculty of expression, so vital a necessity in creative work.

The work, at the beginning, may be considered as contributing to this end, although its exercises are given a somewhat formal character, but later charcoal drawing from the cast of ornament introduces the work in pure drawing, expanding into "antique" and "life," while much time is given to instruction in water color (in still life, nature and architectural perspective), and pen and ink rendering. Associated with this work and related no less to that in architectural drawing and in pure science, are the courses in Perspective and Shades and Shadows.

Supplemental to this course, a series of lectures will be given before the classes by prominent architects and members of the Colorado Chapter of The American Institute of Architects, upon the various phases of professional work.

## MATHEMATICS

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**General Statement.**—The course in Mathematics is full and complete. The different subjects are taken up in logical order as rapidly as the student has fitted himself for them. The courses offered are the following:

First Sub-Freshman—Elementary Algebra, three terms.

Second Sub-Freshman—Plane and Solid Geometry, three terms.

Freshman—College Algebra, two terms.

Plane Trigonometry, one term.

Sophomore—Analytical Geometry, one term.

Differential Calculus, one term.

Integral Calculus, one term.

Descriptive Geometry, two terms.

**Algebra.**—This subject is pursued during the first Sub-Freshman and Freshman years. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of arithmetic by the notation of two sorts of quantities directly opposite in character, and the conciseness obtained by the use of literal notation. He is taught the fundamental operations of addition, subtraction, multiplication and division and also the methods of solving simple equations containing one unknown quantity. Subsequent work during the next two terms acquaints him with factoring, common factors and multiples, fractions, fractional equations, simple simultaneous equations containing two and three unknown quantities; involution, evolution, theory of exponents, radicals and imaginary expressions. The text-book used is "Elements of Algebra," by Wells, and the work in the first Sub-Freshman year extends to quadratic equations. This subject is continued in the Freshman year.

**Geometry.**—This subject is taken up at the beginning of the second Sub-Freshman year, and in the three terms given to this study the student is given a thorough and practical acquaintance with the construction of geometrical figures. He also takes up



formal proof and is led to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience. He is also given thorough practice in the mensuration of geometric magnitudes. So far as time and ability of the student will permit, he has practice upon original exercises. The year's work covers the whole of Wentworth's "Plane and Solid Geometry."

**College Algebra.**—For two terms in the Freshman year the student deals with the principles of advanced algebra. The text-book used is Wentworth's "College Algebra." The work begins with quadratic equations, and during the first term the student is expected to cover the entire subjects of quadratics, ratio and proportion, variation, progressions, the binomial theorem, and logarithms. During the second term the following subjects are taken up in order: Variables and limits, series, general properties of equations, derivatives, transformation and solution of equations of the third and higher degrees (involving "Horner's Method" and "Sturm's Theorem"), and what time remains is given to choice, chance, and the graphical representation of functions, thus opening the way for Analytical Geometry.

**Trigonometry.**—This subject is taken up in the Freshman year and during a term's work in it the student is made familiar with "Plane Trigonometry." He is given clear ideas of the trigonometrical concepts, shown their relations and given considerable practice in the practical application of this branch of mathematics.

At this point all students in the Agricultural, General and Domestic Science courses discontinue their mathematical studies. From the wide application of mathematics to all branches of engineering, those students electing any one of the courses in engineering continue their mathematical studies throughout the entire Sophomore year.

**Analytical Geometry.**—This subject is taught during the first term of the Sophomore year. Wentworth's "Analytics" is the text used, and the student is made acquainted with the method of co-ordinates and the connection between algebraic and geometric forms. The fundamental properties of conic sections, loci of the second order, and higher plane curves are developed and as much more of the subject as time permits.



**Calculus.**—The Winter and Spring terms of the Sophomore year are devoted to the study of the Differential and Integral Calculus. "Differential and Integral Calculus," by Hutchinson and Snyder, is the text-book used, and the subject is pursued as there given. The notation of limits is, however, made the logical basis upon which the subject is developed.

**Descriptive Geometry.**—This subject is taught to the students of the engineering course for two terms during their Sophomore year. The principles of projection, intersection, development, etc., are discussed and illustrated by a great variety of problems, all of which are accurately worked out on the draughting-board by each student.

The department is provided with a set of Schroeder models from Darmstadt, and with models of warped surfaces, etc., for the purpose of illustration in the study of geometry. There is also a set of drawings for the use and study of curves and curve tracing.

The purpose of instruction in this department is two-fold; first, to give the student clear and exact ideas of magnitude and their measurements; and second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

## HISTORY AND LITERATURE

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### HISTORY.

The purpose of the work in history is (1) to give that information concerning the past which the intelligent citizen requires; (2) to aid the student in acquiring a scientific method of investigation and consideration of historical data; (3) to awaken an interest in the great field of history and biography which the library affords.

The following courses in History are offered:

**Course I. Ancient History.**—This course is offered during the Fall and Winter terms of the first Sub-Freshman year. The student is expected to have had thorough preparatory work in the study of History of the United States. The object of the course will be an acquaintance with the great epochs of history, with special attention to the part taken by Greece and Rome in the advancement of human progress. A text-book will be used, supplemented by library references, classroom lectures and the stereopticon whenever desirable.

**Course II. Mediaeval Europe.**—A critical study of the movements and institutions which characterized the middle ages, the renaissance and reformation periods, and the rise of modern nations, is given in the Fall term of the Sophomore year. Extracts from the original sources in connection with suggestive studies are used, and the student will be encouraged to form his own opinions and to produce proofs to support his judgments as to the influence of this period in the world's civilization. The reference library, lectures, the stereopticon and historical composition by the students, will be features of this course.

**Course III. English History.**—This course follows in the Winter term of the Sophomore year. The influence of English history upon American institutions makes this study one of particular interest, and very valuable as preparation for work in English Literature, Constitutional History and Political Econ-

omy. A text-book will supply an outline for the course, and collateral readings from the leading authorities will be furnished by the library.

**Course IV. Philosophy of History.**—This course, offered during the Winter and Spring terms of the Junior year, includes study and practice in historical investigations; the laws governing human actions; reciprocal influences of religion, literature and government; comparisons and criticisms of past civilizations and their relation to modern progress. Adams' European History as a text will supply an outline for the course which will be supplemented by lectures and library readings.

**Apparatus.**—By means of the stereopticon and a fine collection of views, many scenes of historic and literary interest are brought into the classroom. A valuable collection of foreign photographs also belongs to this department, by which the art and architecture of the past and present are illustrated.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illustrate ten periods of European history since the Christian era, and also include seven maps for the study of ancient history and excellent maps for United States History.

## LITERATURE.

It is the object of this study to lead students by direct contact with the literary masterpieces to understand the art in literature, and to develop their power of appreciating the strength and beauty of English writings.

**Course I. American Literature.**—The Spring term of the first Sub-Freshman year is devoted to this course, the purpose being to develop intelligent appreciation of American masterpieces and to promote a love for our standard literature. Several American classics will be made the subject of critical classroom study.

**Course II. English Literature.**—In the Winter term of the Freshman year a brief historical outline of the periods of English Literature is supplemented by study of the works of representa-

tive authors. Masterpieces from Chaucer, Spenser, Bacon, Shakespeare and later writers form the basis for the term's work.

**Course III. The Drama.**—The Spring term of the Sophomore year will be devoted to Shakespeare and the drama. Lectures will be given on the principles of dramatic art, with particular attention to character study, plot development, and the contrasts between ancient classic and modern romantic drama. Several of Shakespeare's plays will be studied in class. Frequent themes will be required on topics suggested by the reading.

**Course IV. English Literature.**—The growth and development of literary art during the Seventeenth, Eighteenth and Nineteenth centuries will form the basis for work during the Fall and Winter terms of the Senior year. Much reading will be required and more recommended. The class work will consist of the study of several masterpieces from Milton to Tennyson, with written exercises on subjects suggested by the readings.

**Course V. English Essays and Fiction.**—During the Spring term of the Senior year, special attention is devoted to English prose. The leading essayists and critics will be studied. The history and growth of the novel, will be considered; its place in literature; use and abuse of fiction; fiction as a laboratory for character study, etc., will furnish subjects for the lectures of the course. Illustrative readings will be required.

**Library Reading.**—The College Library is the laboratory of this department, and four hours per week of library reading is expected of each student in connection with all courses in History and Literature. During the Sub-Freshman course in history the system of library classification is explained, and the student is made familiar with the use and location of the valuable works of reference with which our library is supplied.



## CONSTITUTIONAL HISTORY AND LAW

The study of the history of the Constitution of the United States, and of the growth of free institutions, which that document so fitly emphasizes, is a prominent feature of the course, especially during the Senior year. With Andrew's concise but comprehensive text-book as a basis, instruction is given concerning all the events and causes which led to the formation of the National Government as it exists today, and the same traced to their historic sources. The workings of the Federal Government, together with its relations to the States, are also amply illustrated by frequent class lectures. Such information is due at the hands of every institution maintained by State or National aid or tending to better fit their graduates for the duties of citizenship, and for the responsibilities of a republican form of government which rest with especial weight upon those who have received their education free at the hands of the State and Nation.

In connection with this study of constitutional history, there is also instructions given in International law, with Davis as a text-book, and which includes not only a concise investigation of the general principles and rules of this science, but a history of all the great diplomatic questions which have at different periods claimed the attention of the people of the United States, from the French alliance during the war of the Revolution to the conference at The Hague. This naturally comprises a consideration of the diplomacy which has led to all the vast acquisitions of territory which have extended the United States from the Atlantic to the Pacific.

Closely associated with this work are studies in political economy with Ely as a text-book, and also in irrigation law, a knowledge of which is of such supreme importance in this and other States in which agriculture by irrigation is practiced. Frequent lectures on the history and growth of the trans-Mississippi West are also given.

These studies, following a thorough course in history, cover in a comprehensive manner the various political sciences, and, fitly supplementing the scientific and technical work of other departments, will be found of every-day practical advantage to all graduates when they shall have entered upon the real and active duties of life.



## RHETORIC AND PHILOSOPHY

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### RHETORIC.

The aim of the following course in Rhetoric and English Composition is, in general, twofold: (1) To train the student in the theory and the practice of English Composition; and (2) by the study of the fundamental principles of style, to aid him in an intelligent appreciation of literature.

**Course I. Elementary Rhetoric and Composition.**—This course extends daily throughout the first Sub-Freshman year. The classroom work is divided equally between theory and practice. Scott and Denney's **Elementary English Composition** and Webster's **Academic Dictionary** are the required text-books. Composition work is carefully encouraged, and written exercises required almost daily. Students are drilled to correct their own mistakes. Before entering upon this course, or upon any later course, students must prove their unquestioned acquaintance with technical English Grammar.

**Course II. Rhetoric and Themes.**—This course follows the **Elementary Rhetoric and Composition** of the Sub-Freshman class, which is a prerequisite. Devoted mainly to the study of essay structure and the fundamental principles of the different forms of discourse. Analysis of good prose models. The course is given daily throughout the Fall and Winter terms of the Freshman year.

### PHILOSOPHY.

**Course I. Psychology.**—A course of elements and outlines of Psychology is given the Spring term of the Junior year, and it aims to familiarize the student with first psychological principles. The course is supplemented by lectures and simple laboratory work. Three hours.

**Course II. Logic.**—This course is elementary, and is given the Fall term of the Senior year. It is presented through recitations, discussions and many original exercises. The syllogism

is especially and minutely worked out. A number of scientific and philosophical arguments, as well as characteristic judgments of immediate perception are studied. The aim is to bring out in a clear and practical manner both the inductive and the deductive sides of inference, and to point out some of the principles of philosophy that are involved in them. The text-book for 1903-1904 is Creighton's Introductory Logic. Three hours.

**Course III. Ethics.**—This course is given the Spring term of the Senior year. The work in Ethics bases itself upon the psychological ideas acquired in the previous courses, and applies them to the analysis of character, habit, desires and ideals from an ethical point of view. Mackenzie's Manual of Ethics is followed pretty closely as a text-book, supplemented by library work. Three hours.

## MODERN LANGUAGES

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In German and French, the aim of the work is to enable students to read easily, so they may be independent in scientific research and reading, and also to interest them in the language itself. The work covered in German and French is that required for entrance to our best universities and colleges. In Spanish we desire to give the student a vocabulary, knowledge of idioms and, above all, familiarity with the sounds of words that he may recognize them when spoken.

First year German for the Sub-Freshman recites five times a week through the year. The first term's work is on grammar forms, composition, idioms, pronunciation, dictation, translation at hearing, Grimm's Law and easy translation. This work is continued through the winter term, sight translation being introduced. In the spring term the grammar is reviewed, translation made more difficult and composition introduced once a week. Several poems are learned during the year.

Second year German for the Freshmen, five recitations a week, will consist of translation of German classics and scientific magazine articles, committing to memory German selections and prose composition, once a week.

The work in French is similar to that in German, there being the same number of recitations during the year for the Sub-Freshmen. In the Freshman work for the engineers there are only two recitations a week, translation being the sole object. A Sophomore class in second year French will read more difficult translation twice a week, beginning in 1904.

In Spanish there are five recitations weekly for the Sub-Freshmen. In the fall term the grammar is the main work, a little translation, idioms, conversation, translation at hearing and dictation. In the winter term composition, based on the grammar, translation, some study of business forms. In the spring this work is continued with some newspaper reading and letter-writing, more difficult translation.

Students who intend to take Agricultural Course should elect German, those desiring to become Engineers, French, while Spanish is expected of candidates for Commercial Course.

## COMMERCIAL COURSE

### JUNIOR YEAR.

#### FALL TERM.

|                           |   |                                      |
|---------------------------|---|--------------------------------------|
| Commercial Arithmetic, 5. | { | P. M.—Bookkeeping and<br>Penmanship. |
| Spelling, 5.              |   |                                      |
| Rhetoric, 5.              |   |                                      |

#### WINTER TERM.

|                             |   |                                      |
|-----------------------------|---|--------------------------------------|
| Commercial Arithmetic, 5.   | { | P. M.—Bookkeeping and<br>Penmanship. |
| Composition, 3.             |   |                                      |
| Themes, 2.                  |   |                                      |
| Business Correspondence, 5. |   |                                      |

#### SPRING TERM.

|                                               |   |                                         |
|-----------------------------------------------|---|-----------------------------------------|
| Commercial Arithmetic, 5.                     | { | P. M.—Business Practice<br>and Banking. |
| Accounting, 5.                                |   |                                         |
| Business Correspondence and<br>Penmanship, 5. |   |                                         |
|                                               |   |                                         |

### SENIOR YEAR.

#### FALL TERM.

|                          |   |                                       |
|--------------------------|---|---------------------------------------|
| Stenography, 5.          | { | P. M.—Stenography and<br>Typewriting. |
| Commercial Geography, 5. |   |                                       |
| <hr/> _____ , 5.         |   |                                       |

#### WINTER TERM.

|                               |   |                                       |
|-------------------------------|---|---------------------------------------|
| Commercial Law, 4.            | { | P. M.—Stenography and<br>Typewriting. |
| Constitution of the U. S., 3. |   |                                       |
| Sociology, 3.                 |   |                                       |
| Stenography, 5.               |   |                                       |

#### SPRING TERM.

|                           |   |                                             |
|---------------------------|---|---------------------------------------------|
| Stenography, 7.           | { | P. M.—Typewriting and Of-<br>fice Practice. |
| Commercial Law, 4.        |   |                                             |
| Constitution of U. S., 4. |   |                                             |

The aim of the course is to meet the wants of those who are seeking a high grade business education. It trains the student to meet the exacting demands of modern commercial life. The fact is recognized that the market is already overcrowded with young people of limited and imperfect preparation and unable to avail themselves of the opportunities of the business world.

It is not the design of the Commercial Department to educate students for a business life in the shortest possible time, but rather to train them in such manner that they may fill positions of the highest trust. Experience has clearly shown that persons of limited and imperfect training invariably fall into the lowest class of workers; while those who are well trained and educated are sought and liberally paid for their services.

The instruction of this Department articulates so closely with the work of the College that the two harmoniously blend and unite to give a thoroughly cultural as well as technical training for the higher business pursuits.

Students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advantage of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well-furnished museum, the College associations of all kinds, and all the elaborately equipped laboratories are open to students of the department, and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

**Thoroughness.**—One of the most important features of the course is thoroughness. Herein lies the secret to success, lucrative positions and promotion. Thorough training is absolutely necessary. The student's work is examined critically and is not credited unless it is up to the required standard.

**Shorthand.**—It has been truly said that the practice of shorthand "draws out all the powers of the mind; it incites invention, improves the ingenuity, matures the judgment, and endows the retentive faculty with the superior advantage of precision, vigilance, and perseverance."

The student devotes from two to four hours per day through-



out the Senior year to the acquirement of this useful and indispensable art, using Isaac Pitman's Shorthand Instructor (20th Century Edition), as a guide. Students who complete this course find no difficulty in obtaining high-grade positions.

Aside from the value of phonography as a means of obtaining an English education, embracing, as it does, a thorough knowledge of orthography, grammar, composition, rhetoric, etc., the earnest student has no surer means of turning his knowledge to practical account than by the successful completion of this course, which includes instruction in punctuation, preparation of manuscript for the press, proof reading, etc.

The work of the department appeals strongly to teachers, graduates of high schools, academies, and universities, as the surest means of bettering their immediate condition, and in many instances proves a stepping-stone to higher pursuits and positions of trust and responsibility.

**The Literary and Scholastic Attainments** of the graduates of the Commercial Course is the strongest factor in commending them to the business and professional world, into which they are received without question. There is no better assurance of obtaining a "position" than the possession of a diploma from this department.

**The United States Civil Service** offers opportunities for which it is the special province of this department to prepare young people desirous of qualifying for the examinations.

Students who pass the preliminary amanuensis examinations the first week in April of each year, are allowed to begin specialization in the various branches of reporting, i. e., mercantile, legal, legislative, and technical.

**Typewriting.**—"The typewriter is so ingenious and simple in its construction that the average person can learn to write words on it in ten minutes' time. Hence the long popular belief that no special instruction is needed, but that a few days' practice alone will enable one to become a competent and valuable operator. This fallacy has brought disappointment and failure to many a bread-winner, has been the cause of untold annoyance to employers, and has forced capable and conscientious teachers to let their students go out unprepared because public opin-

ion refused the time and expense necessary to learn properly the art of Typewriting. As a natural result, business men are now complaining bitterly of the incompetency of applicants, even when they are the product of so-called business schools."

—Complete Typewriting Instructor—Barnes.

"The workers of the world bend before the machine which Puck parodies as being 'more puissant than the Gatlin gun,' and eagerly acknowledge its power. Commerce, the law, science, literature, art, business everywhere, education in manifold aspects—one and all, go to the little machine for some measure of assistance, and no branch of physical or intellectual labor comes away unsatisfied.

"Man's life is quickened and lengthened by the tireless activity of the writing machine. Its incessant click beats marching time to every forward movement, and makes progress more progressive. Men turn away from weary toil to find labor lightened with sympathetic zeal when the fingers begin their salutary movements.

"A new profession has opened to the gentler sex, and all welcome her to a place in affairs. Educators are not indifferent to the signs of the times, and the schools are receiving an impulse from no less an agency than the writing machine.

"Hardly since the dawn of the present era of civilization has an invention or discovery worked greater wonders; never, we think, has a single mechanical device contributed so widely and so variously to the welfare of man. The pen is indeed mighty, but the steel corrodes. The tongue is silvery with speech, but the rhythmic keys speed language on its mission. The mind is pregnant with fertile thoughts, but ease and speed of writing makes the human intellect ten times more prolific. Commerce expands with the peopling of the continents, and the natural growth of prosperity on land and sea; but prominent among the activities of the world the typewriter already occupies an important place—busy where business is liveliest, making man's intercourse with man readier and closer, and contributing more or less directly to the success of almost every human achievement."—Bates Torrey.

Needless to say the "touch" system of typewriter operation is taught. The equipment is unequalled anywhere in the West, and consists of twenty-five machines of standard make. From

two to three hours per day are given to instruction and practice in this subject. The following outline, taken from Pitman's Phonetic Journal, is followed with slight variation:

1. Business correspondence from shorthand, longhand and printed matter.

2. Copying badly-written and confused manuscript; literary, technical, commercial, legal, scientific and medical matter. Correct arrangement of manuscript matter; necessary line-spacing for various kinds of work, foot-notes and extracts, side-headings.

3. Advanced displayed work. Correct centering of headlines; arranging matter to balance on paper so as to get top and bottom margins approximately equal.

4. Advanced tabular work. Rules for dividing scale in order to arrange columns regularly and accurately. Accounts, red ruling. Schedules of quantities and prices, market, stock exchange, and other quotations and tabulated matter from plain and rough draft.

5. Legal work, bills of costs, agreements, indentures, wills, affidavits, statements of claim, writs, depositions, etc., etc., draft copies engrossments, correct endorsement, and backing.

6. Balance sheets and financial statements; wide and narrow carriage; red ruling.

7. Specifications: architects', engineers', contractors', electricians'.

8. Companies' prospectuses; corporation reports.

9. Tenders, estimates, and contracts.

10. Commercial, literary, and legal abbreviations; chemical, mathematical, and other signs; foreign words and phrases of international use, with their meanings.

11. Dramatic work; prompt book; actors' parts; correct red ruling.

12. Duplicating, carbon, semi and full; stencil, letter press copying.

13. Mechanical construction, manipulation, and care of the machine; degree of touch, the wrong side of the paper must not show perforation by full stops, commas, hyphens, etc.; possible defects and accidents; rectifying temporary derangements likely to occur to machine.

14. Correct use of the various characters composing the keyboard; signs made by combinations, foreign accent marks, diphthongs, raised letters. Roman notation.

15. Writing short sketches and answering questions relating to office routine, commerce, banking, insurance, and stocks.
16. Writing short essays on subjects of literary interest.
17. A syllabus of the United States Civil Service.

**Bookkeeping.**—The student is first instructed in the elements and principles of theoretical bookkeeping, both double and single entry, and as soon as he shows that he has a clear understanding of the elementary work, he is promoted to advanced bookkeeping. Here he learns to keep books in various lines of business, including mercantile, both wholesale and retail; and manufacturing. After acquiring sufficient skill in advanced bookkeeping, and passing satisfactory examinations, the student enters actual business practice; is assigned his official desk as a business man, and is furnished with a cash capital and stock of merchandise, according to the business in which he is to engage. He issues and receives every form of business paper, including checks, notes, drafts, orders, receipts, leases, articles of agreement, bills, invoices, statements of accounts, account sales, bills of lading, money orders, C. O. D. sales and purchases, and, in fact, every form and description of business paper in use. He writes and receives letters pertaining to all affairs of the business, and secures a first-class drill in correspondence. He is taught to brief and file every business paper received. His work covers the entire range of business transactions, from the simplest to the most difficult.

In the theoretical work the student is made familiar with the first principles of the science of bookkeeping. He is guided carefully until he can master the simpler forms of the daybook, journal, cash-book, and ledger, and can post and close his books correctly. Frequent exercises in journalizing and closing ledgers are given for class drill. In the advanced bookkeeping the student will gradually be required to master all forms and sets of books in the various lines of business, which include partnership, joint stock companies, corporations, etc.

A rigid inspection and examination of books and papers relating thereto, is frequently made and under no condition will work be passed and credited unless it is strictly up to the required standard.



The office department consists of a national bank, a state bank, a wholesale and retail mercantile business, and a commission office; also facilities for a commercial exchange, and is equipped with books, modeled after those used by large concerns, which are kept by the students. The student has from six to twelve weeks' office practice before entering the final examinations.

The average student will complete the bookkeeping in one school year, after which, if capable in other directions, he will be able to do the accounting work required in any business office.

**Commercial Law.**—The need for a thorough understanding of the underlying principles of this subject, on the part of those who expect to become identified with the practical world of affairs, is patent to every prudent business man and woman. To meet this requirement a thoroughly systematic and comprehensive course of instruction is offered with the end in view of preparing the student for the exacting demands of modern commercial life. A study of the business laws and customs of foreign countries with which we have interests in common is included in this course, which continues during the Winter and Spring terms of the Senior year. The work of the text is supplemented by lectures on current topics of general interest having a direct bearing upon the subject.

**Commercial Geography.**—In this age of industrial achievement and commercial advancement, in which the United States plays so important a part, a knowledge of the conditions surrounding the growth of the Nation as a commercial and maritime power is indispensable. During the Fall term of the Senior year the student devotes five hours per week to this interesting topic, which includes a study of "the natural resources and productions of the earth; of the distribution of products; of routes of commerce and lines of transportation; and of markets and manufactures," including such subjects as Domestic, Colonial, Foreign, and Carrying Trade. Adam's textbook of **Commercial Geography** is used, added to which the well selected library of the College, the publications of the **National Geographic Society**, and the copious maps of the department, serve to make this delightful study a wellspring of absorbing interest and a never-ending source of profit.



**Commercial Arithmetic.**—Mathematical accuracy and rapidity are necessary in the present business life. To teach the student to compute correctly and rapidly is the aim of this work. Daily classes are conducted throughout the Junior year, in which all practical short methods are taught.

**Penmanship.**—Penmanship is taught in an interesting and systematic manner. No branch of study in a business education is of greater importance. One of the best recommendations in securing a position is a good strong business handwriting. No waste of time is allowed in useless flourishes, the student being compelled to learn a clear, legible rapid business hand, such as strikes the mind of the business man as at once the most practical. A complete drill in pen-holding, position and movement is given.

**Expenses.**—Tuition is free. All books and stationery for the two years' course need not cost to exceed \$25. Board and lodging at from \$3 to \$4 per week; club board at reduced rates.

**Advantages.**—1. Free tuition. 2. Text-books and all stationery sold at cost. 3. A specialist in charge of each class. 4. First-class office equipments for actual business. 5. The large library, museum, College associations and laboratories open to students. 6. Military drill. 7. The students, being under the direct influence of the College, receive culture and obtain privileges that cannot be equalled by business colleges.

**Requirements for Admission.**—Entrance examinations will be held at the opening of the Fall term. Candidates for admission must be at least fifteen years of age, must show that they have sufficient attainments to enable them to carry on the work, and must pass a satisfactory examination in all branches named in the course of the Freshman class. Those who are prepared for the work will receive advanced standing.

**Diploma.**—Students who complete the two years' course will receive a diploma.

## MILITARY DEPARTMENT

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The importance of military training, both to the individual and the State, is so apparent that comment thereon is here unnecessary, further than to say that the physical training and development alone is sufficient proof of its benefits. The growing demand for military instruction in connection with school work, and the fact that the State Agricultural College is the only State institution where such a department exists, has led the authorities to make the work as thorough as practicable.

For instruction the cadets are formed into companies and the companies form a battalion. Each company has a captain, two lieutenants, five sergeants and five corporals. The officers and non-commissioned officers are selected from those in the higher classes showing the most proficiency in the work.

The work in the Fall term embraces the school of the soldier, company and battalion in close order. Battalion drills are continued at intervals throughout the year. Extended order drill is taken up in the Winter term and continued the Spring term. This includes skirmishes and battle exercises in platoon, company and battalion; advanced guard, rear guard and outpost duties. Inspections, battalion parades, guard mounting and street parades are occasionally given. Inspections are given at such times as to insure the proper care of the equipment. All military exercises are performed in accordance with the United States Drill Regulations.

Practice in Artillery drill is had during the Spring term. This is instruction in the school of the cannoneer, unmounted, and is in accordance with United States Artillery Drill Regulations.

The signal corps does practical work in transmitting messages, both by means of signal flags and with heliographs. The systems used are the same as those used in the Government service.

During unfavorable weather theoretical instruction is given, with occasional drills in the manual of arms, which can be executed by the battalion as a whole, within the armory.

The military encampment, held at the close of the school year, affords an excellent opportunity for further instruction in all the duties of the soldier in camp and garrison. To fully carry out this plan in accordance with regulations, the College Battalion has access to the camp and garrison equipage of the State Militia.

The Department is equipped with 250 cadet rifles, belts, cartridge boxes, bayonets and scabbards; two 3-inch rifled field pieces; National and Battalion colors; swords for officers; signal flags and heliographs; drums and trumpets for a field band of fourteen members.

Regular Military encampments are held at least every two years. This is considered a part of the college work and the attendance of the cadets upon these outings is compulsory.

**Battalion Roster.**

(Staff.)

|                            |                             |
|----------------------------|-----------------------------|
| R. A. Maxfield.....        | Major                       |
| R. P. Jackson.....         | 1st Lieutenant and Adjutant |
| L. C. Graves .....         | Sergeant Major              |
| Wardwell Blydenburgh ..... | Color Sergeant              |
| Willett Barton .....       | Chief Musician              |
| Earl P. Riddell.....       | Drum Major                  |
| P. J. Mulder.....          | Staff Photographer          |

**A Company.**

|                                                                                     |                  |
|-------------------------------------------------------------------------------------|------------------|
| Captain .....                                                                       | C. W. Burnheimer |
| 1st Lieutenant .....                                                                | J. D. Norvell    |
| 2nd Lieutenant .....                                                                | Ray Murphy       |
| 1st Sergeant .....                                                                  | John O. Thistle  |
| 2nd " .....                                                                         | Clair Hotchkiss  |
| 3rd " .....                                                                         | Bruce Kortz      |
| 4th " .....                                                                         | R. W. Todd       |
| 5th " .....                                                                         | C. R. Marshall   |
| Corporals—Perry Cunningham, C. E. Shaffer, R. C. Spitzer, W. A. Harris, Harry West. |                  |

**B Company.**

Captain ..... C. E. Davis  
 1st Lieutenant.....J. A. Phillips  
 2nd     "                 ..... Fred Stearley  
 1st Sergeant..... M. K. Auld  
 2nd     "                 ..... F. C. Nichols  
 3rd     "                 ..... H. Sneddon  
 4th     "                 ..... R. B. McLain  
 5th     "                 ..... F. S. Fobes  
 Corporals—R. K. Fuller, L. R. Olsen, J. C. Counter, H. P. Hall,  
               W. H. Pickett.

**C Company.**

Captain..... Graham Fuller  
 1st Lieutenant..... Wm. Lamb  
 2nd     "                 ..... Dwight L. Gross  
 1st Sergeant..... Vernard Babbitt  
 2nd     "                 ..... Horace Hubbell  
 3rd     "                 ..... Ansel Harding  
 4th     "                 ..... Perry Zenor  
 5th     "                 ..... Glen Walter  
 Corporals—Harry Strong, Sidney Arscott, Wm. Gray, H. B.  
               Fleshman, Bert Snow.

**D Company.**

Captain..... Joseph Reed  
 1st Lieutenant ..... Albert Cliff  
 2nd     "                 ..... John Lewis  
 1st Sergeant..... Ralph Parshall  
 2nd     "                 ..... I. E. Newsom  
 3rd     "                 ..... T. A. Tomlin  
 4th     "                 ..... W. J. Morgan  
 5th     "                 ..... Howard Tubbs  
 Corporals—E. W. Dougherty, H. W. Wester, Carl Veazey, H. J.  
               Phelps, B. W. Day.



## LIBRARY

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The College Library was founded in 1878 by donations from the members of the faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax.

The Library is supported by purchasing funds made for the Library directly and for the books of the departments. This is derived from the funds of the College. In addition there is a fund known as "The Annie Jones Fund," from the name of the donor, which yields a small annual income. This Annie Jones Fund is carefully used for books that will be a shelf memorial to the fund.

The Library contains nearly 18,000 volumes and about 5,500 pamphlets (a part of which is the Experiment Station Library), and is classified. (Decimal.)

The reading room is well supplied for the present, but lack of floor space is a serious hindrance to its use.

The catalogue of the Library is a simple dictionary card catalogue and is made for student use.

The private library of Dr. Aylesworth has been placed in the main building of the College, and is a good scholar's library. It is especially rich in modern literature and is an unusually large private library. It is a well-balanced collection of books and is extremely useful to the advanced students, who have special privileges in it, granted by the President.

The College Library is open from 7:30 a. m., until 6:00 p. m., except Saturdays, holidays and Sundays. On Saturday the Library is open from 8 to 4 and on holidays as the occasion demands.

The Library may be called a typical College Library, as it stands, with a large collection in history and literature, but as this library will not remain as it now is, it may better to describe the plan and the future of the Library.

The Library is an institution within an institution and grows to the limit of the response of its environment. The Library should be a help to the student at every turn in College and is to be judged by its service; if it help it is a good library,



and if not, it is a poor library. The College Library has responded to the call from the student body, and the College has responded to the call for support, until the library has completely outgrown its present quarters and overflowed into other rooms. As soon as the new building for the department of Civil and Irrigation Engineering is completed, the Library will be moved into a building all its own, which will provide floor space for a reading and reference room, for the stack room and for the use of the apprentices and the classes in Library Science and Library Handicraft.

In this building we shall have the best scientific Library in the West, and shall be able to do things that will give the college within the next five years a collection of 25,000 or 30,000 volumes.

Systematic instruction in library science more than library apprenticeship has been begun and we expect to furnish well trained library workers. Information concerning this course in library science will be furnished on application.

We are prepared to furnish competent cataloguers and assistants for private libraries, school libraries and public libraries and to correspond with librarians or library boards.

Two of the present class are preparing for the library schools at Albany and Brooklyn (Pratt) and we have received requests for information from others who wish to prepare here in Colorado or in the east.

The long list of periodicals usually printed in the catalogue and covering ten pages, has been enlarged beyond the available space of this publication. The list now contains 350 titles without counting the publications of the states of the union and the United States government; but no list can quite cover the ground which may be well described as departmental affiliations, and which are especially rich. Our departmental libraries take on most of their professional value from faculty association and the wide acquaintance of the faculty members with the professional world in engineering, agriculture, commerce, domestic science, biological and natural sciences and their applied forms in the work here.

This library will enter upon some active plan of extension work soon, but the plans are not definitely known at this time. Meanwhile we shall be glad to help where we can, although our small floor space is a great disadvantage in our progress.

## COLLEGE ORGANIZATIONS

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### LITERARY SOCIETIES.

There are eight student societies connected with the College. Meetings are held weekly throughout the school year. Students are admitted to these societies by vote of the members. The fees and dues are not burdensome.

"The Philo-Aesthesian Society" meets in the College Chapel. "The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech."

"The Columbian Literary Society" meets in Horticultural Hall. "This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge."

"The Athenaeum Literary Society" meets in the lecture-room in the Civil Engineering Building. Its purpose is, "to advance the literary culture of its members, give them proficiency in debate, and train them in parliamentary law."

"The Agricultural Club" meets in Agricultural Hall on Friday evening of each alternate week. It is composed largely, though not exclusively, of students taking the Agricultural course, graduates of the College, and instructors connected with the various departments doing work in Agriculture and allied subjects. Its object is to promote the study of the practical problems in agriculture.

"The Commercial Literary and Debating Club" was organized and began its work at the beginning of the year, 1902. Its meetings are held bi-weekly. The object of the club is to afford those students who come to the College for commercial training better facilities for studying and investigating the economic and industrial problems.

"The Forensic Club" meets bi-weekly in "Commercial Hall." Its membership is limited to twenty-five members. It not only prepares debates among its own members, but has arranged for a number of intercollegiate debates. Its sessions are closed. Close attention is given to parliamentary practice.

"The Civil Engineering Society" meets bi-weekly in Civil Engineering Building. Its purpose is to present the literary side of their important technical work and to keep a record of the doings of the department.

"The Domestic Science Club" meets bi-weekly in Domestic Science Building. Its purpose is to cultivate the art of expression relative to the home and social problems of the time.

Nowhere does the Literary Society stand for more than in the Agricultural College. It forms an important part of college life and helps to put into concrete form the investigations of the class room.

The exercises of the forum and the reading table give the student a wider horizon, a widening consciousness of his own powers, and an ease in both conversation and public address.

The College takes unusual pride in the zest and finely tempered rivalry of these societies, regarding them as important co-workers in the upbuilding of the school.

#### ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to encourage the study and practice of oratory in the College. Students registered in any of the four higher classes may be admitted to membership by vote of the Association.

The Association holds three contests each year; one for the members of the Sophomore and Freshman classes, another for the members of the Senior and Junior classes, and a third for the members of the Senior and Junior classes of the Commercial Department.

Three medals are awarded each year; one of gold to the successful orator in the Senior-Junior contest, and one of silver to the Sophomore-Freshman orator taking first rank, and one of silver to the first rank in the Commercial contest.

The orations are passed upon by two sets of judges; one on thought and composition and the other on delivery.

Next to Commencement week College zeal tides highest at this mid-year contest.

#### NATURAL SCIENCE CLUB.

This Club was organized by the members of the Faculty and students of the College in March, 1889. The object of the or-

ganization is to keep its members informed upon recent advances in science, and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

#### Y. M. AND Y. W. C. A.

This non-sectarian religious movement has had a providential growth in the colleges of the world.

The student mind has long been wearied by the endless discussions of creeds and the effort to dogmatize every being and every principle in the universe. But no mind turns so eagerly to devotion of a rational quality and to a life of humanitarian service, as does the mind of the modern student. Witness the course of college movements for the betterment of society and the intense interest manifested by students in sociological problems.

The student's pulse beats fast beneath any heavenly vision that calls him to a wider knowledge and to a nobler appreciation of human worth. Every phase of modern science and philosophy tends to make him reverent and helpful to his fellows.

These two Christian Associations, one for young men and the other for young women, have come into college life for the two-fold purpose of enriching the faith of the individual student and unifying the student body for clean living, a tolerant bearing toward all conditions of life, and the making of a home feeling in the heart of the young man or young woman away from home the first time.

Special emphasis is laid upon unbiased Bible study in groups or circles.

The College authorities have given these organizations a permanent home in the Main College building. It was furnished by the Young Peoples' Church Societies of Fort Collins.

#### SAN JUAN BOARDING CLUB.

A student boarding club was organized a few years ago. Accommodations for about forty students are furnished. The price of board ranges from \$2.00 to \$2.40 per week. The Club



is officered by students under the supervision of the Faculty. The amount and quality of food furnished is regulated by the vote of the members of the Club.

### **ATHLETIC ASSOCIATION.**

The object is to promote the physical well-being of the members and to afford such gymnasium and field practice in athletic games as will enable the chosen representatives to participate with credit in intercollegiate contests.

It is the opinion of the Faculty that whatever excesses there may be in college athletics may best be held in check by sympathetic rather than repressive government.

There are two members of the Faculty on the Board of Directors whose business it is to direct, not to discourage, athletic achievements at home and with other colleges.

The college athlete of to-day is neither a coward nor a dullard; he is both manly and studious.

### **COLLEGE PAPER.**

In December, 1891, the first number of The Rocky Mountain Collegian appeared. Since September, 1901, the paper has appeared regularly twice a month. The columns of the Collegian are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official and patron of the College.

### **COLLEGE ORCHESTRA AND BAND.**

The College is fortunate in having a number of students who have mastered the art of brass, stringed and other instruments. They have not only given zest to College life, but have materially assisted in the entertainments of the year.

The band has been of great service in the military drill.

### **COLLEGE GLEE CLUB.**

In connection with the band and orchestra, the Glee Club, under the direction of Mr. Ormsby, made a second successful tour of the State the past season. Their reception was not only cordial but enthusiastic.



## GENERAL INFORMATION

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**Admission.**—Students are admitted to the College according to the following statute: “No student shall be admitted to the Institution who is not fifteen years of age and who does not pass a satisfactory examination in arithmetic, geography, grammar, reading, spelling and penmanship.”

Therefore, pupils who have completed the eighth grade will be admitted to the first Sub-Freshman year upon satisfying the committee on examinations.

The requirements for admission to the first Sub-Freshman class are those required for entrance to the best high schools. Those who have finished the ninth and tenth grades in a satisfactory manner will be admitted to the second Sub-Freshman year.

Students are admitted to the Freshman year after thorough examinations taken in the subjects contained in the first and second Sub-Freshman years, or upon the presentation of certificates of graduation from accredited high schools. Certificates from schools not accredited may be considered in arranging for entrance examinations. The following schools are accredited:

- Denver High School, District No. 1.
- Denver High School, District No. 2.
- Colorado Springs High School.
- Greeley High School.
- Aspen High School.
- Durango High School.
- Canon City High School.
- Georgetown High School.
- North Denver High School.
- Pueblo High School, District No. 20.
- Pueblo High School, District No. 1.
- Fort Collins High School.
- Boulder High School.
- Golden High School.

Trinidad High School.  
 Grand Junction High School.  
 Cheyenne (Wyoming) High School.  
 Denver Manual Training High School.  
 La Junta High School.  
 Idaho Springs High School.  
 Central City High School.  
 Longmont High School.  
 Montclair High School.  
 Fort Morgan High School.  
 Cripple Creek High School.  
 Victor High School.  
 Leadville High School.  
 Monte Vista High School.  
 Salida High School.  
 South Denver High School.  
 Las Animas High School.  
 Lamar High School.  
 Florence High School.  
 South Canon High School.  
 Saguache High School.  
 Sterling High School.

Candidates for advanced classes or work will be admitted by examination, or certified standing from schools having an equivalent grade of work, or both.

Applicants appearing late in the College year will be required to pass, in addition to the entrance examination, a further examination in the work already passed over by the class they desire to enter.

**Regular and Special Courses.**—Unless there are strong and excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or

otherwise, at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular course.

**Registration.**—The first three days of the college year are devoted to examination and registration. New students will be met at the trains by Committees of young men and women from the Y. M. and Y. W. C. A., who will take them to the College at once for registration, and will assist them to find good homes and open for them the doors of college life.

**Grades.**—In September, 1899, the passing grade was raised from 65 per cent. to 70 per cent. All students who fail to make a standing of 55 per cent. shall be considered "failed," and shall be required to take the subject over again in class. Those making a standing of more than 55 per cent. and less than 70 per cent. shall be considered as "conditioned" and shall be allowed **one special examination** before the subject is again taught by which they may try for a passing grade of 70. In cases of a study extending over two or more terms the student, if he has an average of 55 per cent. may be allowed to continue with his class, but must finally make a grade of 70 per cent. in **one special examination** in each term. If he falls below 55 per cent. in average at the end of a term he will be dropped from the class and be required to take a lower subject.

Students who, by reason of protracted sickness, shall be absent for as much as two-fifths of the term shall be entitled to a special examination on the work done during the time of their absence.

All recitations missed, whether the absence be excused or not, shall be made up at the earliest convenience of the professor in charge. Unexcused absences are met with severe discipline.

Any student who shall have a term standing of 90 per cent. may be exempted from examination and his term standing shall be his term average.

#### RULES FOR SENIOR STANDING.

No student shall be registered as a Senior in the fall or any other term whose work is not complete up to the time of registration, but shall be classified as irregular.

No student shall be eligible for graduation at the following commencement who has at the beginning of the spring term more than fifteen hours work a week still to do; said work must be taken in class during that spring term, except that the student may make up within two weeks after the beginning of the Spring term any deficiencies arising in the preceding Winter term.

**Discipline.**—There are no printed rules. Students are expected to deport themselves as ladies and gentlemen.

While classroom standing is the supreme test of the student's character, the Faculty takes a personal interest in each student, seeking for his highest discipline, physically and morally, as well as mentally.

The moral tone of the College is so high that any one transgressing the commonly accepted laws of good behavior finds himself an outcast among the students unless reformation is prompt and permanent.

**Athletics.**—The Faculty believes in a sympathetic government of athletics. Manly conduct is demanded in sports as well as elsewhere in college life. A certain high grade of proficiency in the class-room is required for recognition in athletics. The new Gymnasium will be in charge of a competent director.

**Leaving College.**—Temporary leave of absence from the College must be obtained from the President. Final separation from College must be acted upon by the Faculty.

**Degrees.**—Upon those who complete the work of any of the six courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

Students who complete the Commercial course will receive a diploma.

On those who already have the degree of Bachelor of Science the degree of Master of Science will be conferred on the completion of a course of study which has been accepted by and been under the direction of the Faculty. The course must extend through at least a year and should include one major and two minor lines of work. The course of work should be accepted



as early as October. The subject of the thesis presented should be selected by December, and the thesis itself, which should show power of independent investigation, presented by May 1st, preceding commencement.

The degree of Civil or Mechanical Engineer will be conferred on similar conditions and for a similar amount of technical work, which must also show the possession of experience on the part of the applicant.

**Expenses.**—TUITION IN ALL THE REGULAR AND SPECIAL CLASSES OF THE COLLEGE IS FREE. There is no charge of any kind for material used in the laboratory work or for books taken from the College Library. A Gymnasium fee of three dollars will be required of every student.

A boarding club, the membership being about forty, has been organized and is managed by the students. The management of this club is so successful and economical, that it suggests the desirability of other organizations of the same character. In this manner board may be obtained at \$2.25 per week. Well furnished rooms, lighted, heated, and cared for, may be had at 75 cents per week.

Students can secure lodging and board in excellent private families at from \$3.50 to \$4.00 per week.

The College authorities are gratified to be able to announce that many of the best homes of Fort Collins are thus opened to students at reasonable rates. No one can estimate the influence of home life thus afforded the young student who is away from home for the first time.

To those who desire to board themselves ample and reasonable opportunities are afforded.

The College is an employer of student labor to a limited extent. In the year just closed our students received \$3,500 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.

Fort Collins is a temperance town, absolutely free from the evils that so often beset students with alluring temptations.

Its church privileges are many and of the most refining and



helpful quality. While students are not required to report church attendance, they are encouraged to cultivate the religious side of their natures. An afternoon service is held at the College every Sunday.

**Drill and Physical Culture.**—All male students are required to procure a uniform immediately after registration, costing about \$14.00, and to drill forty minutes each school day. This, of itself, is a training in physical bearing and a discipline leading to promptness and obedience. The ladies have a daily drill in physical culture. Opportunities are afforded during the year for a public exhibition of physical culture.

The end in view in establishing the Agricultural College was to train the heart, the head and the hand—the trinity of the new education. To make practical men and women for the work world, in field, shop, office and home; to make energetic, patriotic citizens; through its Faculty and students to develop the best resources of this great commonwealth.

The State Board of Agriculture takes pleasure in announcing the extension of the courses of study. This change went into effect September 2, 1902. It will not, however, affect the class of 1904.

The Board has long felt that the College did not carry its students far enough into applied science to fully equip them for the best positions in the industrial and commercial world. By these changes the graduates of the State Agricultural College will be able to meet the fullest demands of the departments of civil and mechanical engineering, farming of every variety, architecture, commerce, domestic science, etc., etc. Thus, the Agricultural College of Colorado is placed upon a level with the two or three leading land-grant colleges of America.



# Register

of Students  
and Graduates





POST-GRADUATE.

|                        |                         |
|------------------------|-------------------------|
| Leroy A. Baker.....    | Fort Collins, Colorado  |
| Fred C. Bishopp.....   | Virginia Dale, Colorado |
| Ernest N. Graves.....  | Broomfield, Colorado    |
| Royall S. Howlett..... | Fort Collins, Colorado  |
| Oro McDermith.....     | Leadville, Colorado     |
| Harry True.....        | Nepesta, Colorado       |

SENIOR.

|                           |                            |
|---------------------------|----------------------------|
| Helen Berry.....          | Fort Collins, Colorado     |
| Frank N. Bills.....       | Denver, Colorado           |
| Wardwell Blydenburgh..... | Saratoga, Wyoming          |
| Chas. W. Burnheimer.....  | Breckenridge, Colorado     |
| Donald L. Carver.....     | Castle Rock, Colorado      |
| Albert R. Cliff.....      | Stout, Colorado            |
| Charles E. Davis.....     | Westcliff, Colorado        |
| Susan F. Dotson.....      | Ludlow, Colorado           |
| Austin Downey.....        | Fort Collins, Colorado     |
| Chas. C. Durkee.....      | Colorado Springs, Colorado |
| L. Cale Estes.....        | Gunnison, Colorado         |
| Graham Fuller .....       | Fort Collins, Colorado     |
| Marie Gill.....           | Laramie, Wyoming           |
| Dwight D. Gross.....      | Greeley, Colorado          |
| Bernard H. Hensel.....    | Grand Junction, Colorado   |
| R. P. Jackson.....        | Denver, Colorado           |
| Harry Jessup.....         | Fort Collins, Colorado     |
| Wm. A. Lamb.....          | Hillside, Colorado         |
| F. N. Langridge.....      | Boulder, Colorado          |
| John H. Lewis.....        | Fort Collins, Colorado     |
| Wm. J. Morgan.....        | Aledo, Illinois            |
| Ray C. Murphy.....        | Glenwood Springs, Colorado |
| Isaac E. Newsome.....     | Fort Collins, Colorado     |
| J. D. Norvell.....        | Fort Collins, Colorado     |
| Jennie A. Phillips.....   | Fort Collins, Colorado     |



|                       |                        |
|-----------------------|------------------------|
| John A. Phillips..... | Fort Collins, Colorado |
| Joseph F. Reed.....   | Fort Collins, Colorado |
| Fred Stearley.....    | Laporte, Colorado      |
| Florence Tharp.....   | Laporte, Colorado      |
| Irwin W. Veazey.....  | Fort Collins, Colorado |

## JUNIOR.

|                             |                            |
|-----------------------------|----------------------------|
| Matthew Auld.....           | Fort Collins, Colorado     |
| Vernard Babbitt.....        | Eaton, Colorado            |
| May Barkley.....            | Fort Collins, Colorado     |
| Loraine M. Bartels.....     | Pueblo, Colorado           |
| Nellie Beach.....           | Fort Collins, Colorado     |
| L. L. Bonnett.....          | Fort Collins, Colorado     |
| Ray H. Bradley.....         | Rock Rapids, Iowa          |
| Ansel Harding.....          | Fort Collins, Colorado     |
| Ralph G. Hosea.....         | Denver, Colorado           |
| E. Clair Hotchkiss.....     | Hotchkiss, Colorado        |
| Horace Hubbell.....         | Fort Collins, Colorado     |
| Charles R. Jones.....       | Ridgway, Colorado          |
| Eva A. Kimmons.....         | Fort Collins, Colorado     |
| Jessie L. Kissock.....      | Fort Collins, Colorado     |
| C. B. Kortz.....            | Fort Collins, Colorado     |
| Charles F. W. Lundberg..... | Denver, Colorado           |
| Charles R. Marshall.....    | La Junta, Colorado         |
| Ida F. McCain.....          | Fort Collins, Colorado     |
| R. B. McLean.....           | Cripple Creek, Colorado    |
| P. J. Mulder.....           | Colorado Springs, Colorado |
| George Neel .....           | Greeley, Colorado          |
| Fred C. Nichols.....        | Trinidad, Colorado         |
| Ralph Parshall.....         | Creswell, Colorado         |
| Mattie Prendergast.....     | Fort Collins, Colorado     |
| Richie Quick.....           | Fort Collins, Colorado     |
| Harry Robertson.....        | Lamar, Colorado            |
| Grace E. Sankey.....        | Fort Collins, Colorado     |
| Ethel M. Schureman.....     | Fort Collins, Colorado     |
| Florence Stuver.....        | Fort Collins, Colorado     |
| Howard Sneddon.....         | Salida, Colorado           |
| Emma Stuver.....            | Fort Collins, Colorado     |
| John O. Thistle.....        | Grand Junction, Colorado   |
| Clyde R. Tinney.....        | Rocky Ford, Colorado       |

|                         |                          |
|-------------------------|--------------------------|
| Ralph W. Todd.....      | Grand Junction, Colorado |
| Thomas A. Tomlin.....   | Fort Collins, Colorado   |
| Louie B. Tuckerman..... | Greeley, Colorado        |
| Glenn G. Walter.....    | Fort Collins, Colorado   |
| W. J. Westfall.....     | Denver, Colorado         |
| John Williamson.....    | Fort Collins, Colorado   |
| Perry Zenor.....        | Fort Collins, Colorado   |

# FRESHMAN.

|                           |                            |
|---------------------------|----------------------------|
| Fred Akins.....           | Humansville, Missouri      |
| F. W. Ayres.....          | Fort Collins, Colorado     |
| I. L. Bailey.....         | Fort Collins, Colorado     |
| F. Ray Balch.....         | Fowler, Colorado           |
| Albert H. Batten.....     | Denver, Colorado           |
| Frank B. Bradley.....     | Roswell Indiana            |
| Ralph F. Bristol.....     | Fort Collins, Colorado     |
| Louise C. Carver.....     | Castle Rock, Colorado      |
| Robert L. Cooper.....     | Fowler, Colorado           |
| James C. Counter.....     | Wray, Colorado             |
| Benjamin W. Dey.....      | Pueblo, Colorado           |
| E. W. Dougherty.....      | Fort Collins, Colorado     |
| Myrtle Dougherty.....     | Fort Collins, Colorado     |
| Alexander Fisk.....       | Colorado Springs, Colorado |
| Thomas F. Fitch.....      | Mankato, Minnesota         |
| H. B. Fleshman.....       | Kansas City, Missouri      |
| Robert K. Fuller.....     | Fort Collins, Colorado     |
| Edna E. Garbutt.....      | Fort Collins, Colorado     |
| Louis C. Gilbert.....     | Fowler, Colorado           |
| Henry M. Giller.....      | Whitehall, Illinois        |
| James J. Girardet.....    | Delta, Colorado            |
| Earl E. Goodwin.....      | Fort Collins, Colorado     |
| William Gray.....         | Denver, Colorado           |
| Frank P. Hall.....        | Snyder, Colorado           |
| W. A. Harris.....         | Basalt, Colorado           |
| Lynn Kennedy.....         | Grand Junction, Colorado   |
| Arthur E. Lamb.....       | Fort Collins, Colorado     |
| Bert M. Mathias.....      | Monte Vista, Colorado      |
| Attie D. Moore.....       | Fort Collins, Colorado     |
| Arthur W. Moorehouse..... | Lamar, Colorado            |
| Glenn C. Morgan.....      | Belvedere, Illinois        |

|                          |                            |
|--------------------------|----------------------------|
| Edward C. Neff.....      | Greeley, Colorado          |
| Daisy E. Oldfield.....   | Fort Collins, Colorado     |
| Clarence L. Olson.....   | Cripple Creek, Colorado    |
| Wm. H. Pickett.....      | Covington, Georgia         |
| Wilton L. Putnam.....    | Orchard, Colorado          |
| Harvey J. Phelps.....    | Fowler, Colorado           |
| Hubert P. Ricketts.....  | Fort Collins, Colorado     |
| Earl P. Riddell.....     | Denver, Colorado           |
| Harvey Riddell.....      | Denver, Colorado           |
| Wm. F. Rosenberg.....    | Glenwood Springs, Colorado |
| Clarence E. Shaffer..... | Fort Collins, Colorado     |
| Parker D. Shepperd.....  | Littleton, Colorado        |
| B. A. Smith.....         | Grand Junction, Colorado   |
| Littell Sniveley.....    | Rocky Ford, Colorado       |
| Bert Snow.....           | Canon City, Colorado       |
| Frank Springsteen.....   | Denver, Colorado           |
| Ray C. Spitzer.....      | Fort Collins, Colorado     |
| Willis Stidger.....      | Fort Collins, Colorado     |
| Henry A. True, Jr.....   | Denver, Colorado           |
| Carl C. Veazey.....      | Fort Collins, Colorado     |
| Maud Walker.....         | Fort Collins, Colorado     |
| H. M. Webster.....       | Talequah, Indian Territory |
| George P. Weldon.....    | Arkins, Colorado           |
| Laura G. Wirt.....       | Fort Collins, Colorado     |
| Robert J. Wright.....    | Greeley, Colorado          |

## SECOND SUB-FRESHMAN.

|                       |                           |
|-----------------------|---------------------------|
| Frank W. Acker.....   | Denver, Colorado          |
| George F. Adams.....  | Greeley, Colorado         |
| Victor H. Akin.....   | Fort Collins, Colorado    |
| Blanche Allen.....    | Fort Collins, Colorado    |
| Arthur Anderson.....  | Kokomo, Colorado          |
| Paul Anderson.....    | Fort Collins, Colorado    |
| Guy Blackmer.....     | Fort Collins, Colorado    |
| L. H. Brissenden..... | University Park, Colorado |
| Mabel Brooks.....     | Eldora, Colorado          |
| John B. Bouton.....   | Chicago, Illinois         |
| James E. Burke.....   | Imperial, Nebraska        |

|                           |                          |
|---------------------------|--------------------------|
| Wm. T. Carver.....        | Castle Rock, Colorado    |
| Carl C. Christman.....    | Virginia Dale, Colorado  |
| Virginia Cleave.....      | Estes Park, Colorado     |
| Metta Covington.....      | Fort Collins, Colorado   |
| Benjamin F. Counter.....  | Brighton, Colorado       |
| Austin Corcoran.....      | Grand Junction, Colorado |
| Bertha Covington.....     | Fort Collins, Colorado   |
| Helen Cuthbertson.....    | Fort Collins, Colorado   |
| Clara Daily.....          | Fort Collins, Colorado   |
| Clyde D. Davis.....       | Canon City, Colorado     |
| Ernest B. Davis.....      | Denver, Colorado         |
| Ithamer Durrant.....      | Lamar, Colorado          |
| Charles B. Eades.....     | Durango, Colorado        |
| John H. East, Jr.....     | Denver, Colorado         |
| Lena Earley.....          | Fort Collins, Colorado   |
| Raymond D. Elmer.....     | Denver, Colorado         |
| Arthur E. Evans.....      | Durango, Colorado        |
| Elisha J. Faloon.....     | Laporte, Colorado        |
| Minnie Giger.....         | Denel, Colorado          |
| Vincent R. Guthrie.....   | Rocky Ford, Colorado     |
| Samuel Guthrie.....       | Denver, Colorado         |
| Henderson L. Heckert..... | Virginia Dale, Colorado  |
| Orrin R. Hewitt.....      | Fort Collins, Colorado   |
| Clara E. Hull.....        | Elbert, Colorado         |
| Edgar G. Hull.....        | Elbert, Colorado         |
| James A. Johnson.....     | Rawlins, Wyoming         |
| Fred Kemper.....          | Fort Collins, Colorado   |
| Perry J. Killgore.....    | Fort Collins, Colorado   |
| Lucy Kirby.....           | Fort Collins, Colorado   |
| Coy E. Klingler.....      | Grand Junction, Colorado |
| Ray Laughlin.....         | Lasalle, Colorado        |
| Archie Levy.....          | Walsenburg, Colorado     |
| 'Augustus Lowe.....       | Canon City, Colorado     |
| Almon A. Lyons.....       | Fort Collins, Colorado   |
| M. Isadore Mahoney.....   | Fort Collins, Colorado   |
| Bertha Marvin.....        | Canon City, Colorado     |
| Robt. B. Mauff.....       | Denver, Colorado         |
| Earl D. Miner.....        | Fort Collins, Colorado   |
| Lewis H. Montgomery.....  | Fort Collins, Colorado   |
| Orton D. Moser.....       | Caledonia, Ohio          |

|                          |                        |
|--------------------------|------------------------|
| R. C. Mulnix.....        | Denver, Colorado       |
| Clyde H. Nash.....       | Georgetown, Colorado   |
| Clyde W. Norvell.....    | Fort Collins, Colorado |
| Bessie Oldfield.....     | Fort Collins, Colorado |
| Max G. O'Neil.....       | Ouray, Colorado        |
| George L. Penley.....    | Sedalia, Colorado      |
| Fred L. Petty.....       | Curtis, Nebraska       |
| Grace W. Richards.....   | Fort Collins, Colorado |
| Chas. W. Riddock.....    | Fountain, Colorado     |
| John D. Riley.....       | Fowler, Colorado       |
| Felix Roullard.....      | Fort Collins, Colorado |
| W. H. Russell.....       | Fort Collins, Colorado |
| Harold H. Seaman.....    | Fort Collins, Colorado |
| R. R. Sisac.....         | Mesa, Colorado         |
| Miles Standish.....      | Delta, Colorado        |
| Floyd Skinner.....       | Denver, Colorado       |
| Florence B. Storm.....   | Canon City, Colorado   |
| Joseph L. Thomas.....    | Georgetown, Colorado   |
| Lottie Tuttle.....       | Boulder, Colorado      |
| Fred Turner.....         | Angus, Nebraska        |
| William A. Tyler.....    | Fort Collins, Colorado |
| Charles R. Van Zant..... | Longmont, Colorado     |
| Frank Wade.....          | Whitehall, Illinois    |
| Stewart V. Wallace.....  | Fort Lupton, Colorado  |
| Mamie Welch.....         | Fort Collins, Colorado |
| H. F. Wilson.....        | Victor, Colorado       |
| James A. Woods.....      | Farmington, New Mexico |
| Edmond P. Woods.....     | Farmington, New Mexico |

#### FIRST SUB-FRESHMAN CLASS.

|                       |                        |
|-----------------------|------------------------|
| Charles Amos.....     | Rocky Ford, Colorado   |
| Robert Anderson.....  | Rocky Ford, Colorado   |
| Wm. E. Anderson.....  | Rocky Ford, Colorado   |
| Laura J. Bailey.....  | Fort Collins, Colorado |
| Harry Baker.....      | Avondale, Colorado     |
| Leroy A. Beers.....   | Fort Collins, Colorado |
| Samuel Bennett.....   | Fort Collins, Colorado |
| Lyall A. Bentley..... | Fort Collins, Colorado |
| Edna Blackstock.....  | Fort Collins, Colorado |



|                             |                          |
|-----------------------------|--------------------------|
| Harry E. Blake.....         | Denver, Colorado         |
| R. W. Barklow.....          | Denver, Colorado         |
| Andrew J. Bloomfield.....   | Meeker, Colorado         |
| T. G. Bond.....             | Blackfoot, Colorado      |
| Harry S. Boughton.....      | Salida, Colorado         |
| Ralph W. Bradley.....       | Fort Collins, Colorado   |
| Franklin A. Brooker.....    | Livermore, Colorado      |
| Ray H. Carver.....          | Castle Rock, Colorado    |
| Cornelia Cash.....          | Fort Collins, Colorado   |
| Ed W. Carter.....           | Greeley, Colorado        |
| Elton R. Chamberlain.....   | Durham, New Hampshire    |
| Ray E. Chatfield.....       | Gypsum, Colorado         |
| Andrew B. Christiansen..... | Fort Collins, Colorado   |
| Gertrude Christiansen.....  | Fort Collins, Colorado   |
| Louis M. Christiansen.....  | Fort Collins, Colorado   |
| Alice B. Christman.....     | Virginia Dale, Colorado  |
| Anson W. Cobb.....          | Rutland, Iowa            |
| Frank A. Cogshall.....      | Cambridge, Iowa          |
| Paul Cleave.....            | Estes Park, Colorado     |
| Waldo C. Cole.....          | Cripple Creek, Colorado  |
| Martin Corcoran.....        | Grand Junction, Colorado |
| James A. Consigny.....      | Fort Collins, Colorado   |
| Andrew B. Crafts.....       | Fort Collins, Colorado   |
| Frank Crocker.....          | Fort Collins, Colorado   |
| Phil Dale.....              | Greeley, Colorado        |
| Ross Davie.....             | Del Norte, Colorado      |
| Dalton Davis.....           | Fort Collins, Colorado   |
| Harry P. Dougherty.....     | Fort Collins, Colorado   |
| Stephen G. Douthitt.....    | Montrose, Colorado       |
| John Duncan.....            | Del Norte, Colorado      |
| Frank A. Dupar.....         | Salida, Colorado         |
| Maude Dyckman.....          | Fort Collins, Colorado   |
| Frank J. Earl.....          | Fort Collins, Colorado   |
| May D. Edwards.....         | Timnath, Colorado        |
| Aaron Fagerberg.....        | Greeley, Colorado        |
| Jennie E. Faloon.....       | Laporte, Colorado        |
| Martha E. Faloon.....       | Laporte, Colorado        |
| Anna G. Fobes.....          | Virginia Dale, Colorado  |
| Edna Fobes.....             | Columbus, Nebraska       |
| Chester L. Fowler.....      | Victor, Colorado         |

|                          |                         |
|--------------------------|-------------------------|
| Lloyd Froggatt.....      | Douglass, Wyoming       |
| Nora Fullerton.....      | Fort Collins, Colorado  |
| May C. Gifford.....      | Fort Collins, Colorado  |
| Timothy Goodwin.....     | Denver, Colorado        |
| George Graves.....       | Bloomfield, Colorado    |
| C. Annabel Gray.....     | Fort Collins, Colorado  |
| Reginald E. Griffin..... | Westcreek, Colorado     |
| John L. Gross.....       | Amethyst, Colorado      |
| Ernest L. Hadley.....    | Durham, New Hampshire   |
| M. J. Hamilton.....      | Longmont, Colorado      |
| Paul C. Hansen.....      | Cripple Creek, Colorado |
| Herman Hansen.....       | Cripple Creek, Colorado |
| Ray Harden.....          | Elkhorn, Colorado       |
| Mark Harden.....         | Elkhorn, Colorado       |
| Edward R. Harper.....    | Salida, Colorado        |
| Chester G. Harris.....   | Fort Collins, Colorado  |
| Nettie Harris.....       | Carbondale, Colorado    |
| Alva A. Hawley.....      | Fort Collins, Colorado  |
| Earl B. Helm.....        | Canon City, Colorado    |
| Flossie F. Heckart.....  | Virginia Dale, Colorado |
| Amanda Henning.....      | Fort Collins, Colorado  |
| William Henning.....     | Fort Collins, Colorado  |
| Edward Heringa.....      | Fort Collins, Colorado  |
| Roy W. Hice.....         | Fort Collins, Colorado  |
| George F. Horner.....    | Timnath, Colorado       |
| James A. Huleatt.....    | Loveland, Colorado      |
| Dora K. Johnson.....     | Rawlins, Wyoming        |
| Henry Kelley.....        | Flagler, Colorado       |
| Frank J. Kelly.....      | Fort Collins, Colorado  |
| Edward D. Kelley.....    | Flagler, Colorado       |
| Walter Kemp.....         | Olney, Colorado         |
| Harry E. Kingman.....    | Boulder, Colorado       |
| Ed H. Kouns.....         | Rocky Ford, Colorado    |
| Frank L. Lamb.....       | Fort Collins, Colorado  |
| Luther C. Lamb.....      | Fort Collins, Colorado  |
| A. K. Langridge.....     | Boulder, Colorado       |
| Elsie Larson.....        | Fort Collins, Colorado  |
| Jessie L. Latimer.....   | Fort Collins, Colorado  |
| John Lester.....         | Olney, Colorado         |
| Ralph E. Littler.....    | Fort Collins, Colorado  |

|                            |                        |
|----------------------------|------------------------|
| Harmon E. Lindsey.....     | Manitou, Colorado      |
| Thomas Locke.....          | Farmington, New Mexico |
| Kenneth H. Mac Nichol..... | Westcreek, Colorado    |
| May M. Marshall.....       | Fort Collins, Colorado |
| George L. McRay.....       | Canon City, Colorado   |
| Edith MacCracken.....      | Fort Collins, Colorado |
| Ernest McKinley.....       | Rocky Ford, Colorado   |
| Florence E. McGowan.....   | Fort Collins, Colorado |
| May A. Mangun.....         | Fort Collins, Colorado |
| Ira Mangun.....            | Fort Collins, Colorado |
| Thomas J. Martinez.....    | Santa Fe, New Mexico   |
| Shelby L. Means.....       | Covedale, Kentucky     |
| Eben L. Merrifield.....    | Fort Collins, Colorado |
| Matthew T. Metcalfe.....   | Fort Collins, Colorado |
| Irwin W. Minger.....       | Denver, Colorado       |
| Norman J. Miller.....      | Fort Collins, Colorado |
| Harry Miller.....          | Salida, Colorado       |
| Parker H. Miller.....      | Columbus, Nebraska     |
| Mark S. Morrison.....      | Denver, Colorado       |
| C. Clark Montgomery.....   | Fort Collins, Colorado |
| Mecca Murray.....          | Fort Collins, Colorado |
| Casper W. Naile.....       | Raton, New Mexico      |
| Clinton L. Nelson.....     | Loveland, Colorado     |
| James A. Nelson.....       | Fort Collins, Colorado |
| John L. Outt.....          | Fowler, Colorado       |
| Chas. C. Officer.....      | Cleburne, Texas        |
| Mary B. Partridge.....     | Fort Collins, Colorado |
| John L. Patchen.....       | Villa Grove, Colorado  |
| Blanche M. Pierce.....     | Fort Collins, Colorado |
| James Pierce.....          | Farmington, New Mexico |
| Jesse R. Quinlan.....      | Canon City, Colorado   |
| Hanford H. Reed.....       | Inerida, Colorado      |
| Harry W. Rinker.....       | Hastings, Colorado     |
| William E. Runge.....      | Denver, Colorado       |
| Emily B. Ruthven.....      | Loveland, Colorado     |
| Earl Salisbury.....        | Slater, Colorado       |
| Geo. R. Salisbury.....     | Slater, Colorado       |
| Lee E. Savage.....         | Maher, Colorado        |
| Herman Schraeder.....      | Fort Collins, Colorado |
| Mary A. Severance.....     | Eaton, Colorado        |

|                          |                        |
|--------------------------|------------------------|
| Roy Siegel.....          | Denver, Colorado       |
| Berry P. Sloan.....      | Livermore, Colorado    |
| Richard Sneddon.....     | Salida, Colorado       |
| Edward Southward.....    | Norwood, Colorado      |
| Dora Stauss.....         | Fort Collins, Colorado |
| Laurence Storm.....      | Fort Collins, Colorado |
| Arthur Schmohl.....      | St. Joseph, Missouri   |
| James A. Strachan.....   | Fort Collins, Colorado |
| Robert M. Strang.....    | Fort Collins, Colorado |
| Don. W. Stuver.....      | Fort Collins, Colorado |
| Albert E. Sullivan.....  | Salida, Colorado       |
| William W. Swope.....    | Guffey, Colorado       |
| Isabelle M. Smith.....   | Fort Collins, Colorado |
| Lottie E. Talbot.....    | Fort Collins, Colorado |
| Low C. Talbot.....       | Turan, Kansas          |
| Ethelyn Tarr.....        | Fort Collins, Colorado |
| David L. Thomas.....     | Denver, Colorado       |
| Arthur W. Thompson.....  | Farmington, New Mexico |
| Stuart M. Thornton.....  | Berthoud, Colorado     |
| Wilbert C. Titus.....    | Longmont, Colorado     |
| Theodore D. Urbahns..... | Minden, Iowa           |
| Anton Ve Verka.....      | Sterling, Colorado     |
| Charles Weuve.....       | Fort Collins, Colorado |
| C. A. Westerdoll.....    | Loveland, Colorado     |
| Verner White.....        | Haigler, Nebraska      |
| Frank R. Williams.....   | Livermore, Colorado    |
| Robert L. Wilson.....    | Fort Collins, Colorado |
| Wm. T. Wise.....         | Canfield, Colorado     |
| Claude A. Wylie.....     | Fort Collins, Colorado |
| Guy F. Wylie.....        | Fort Collins, Colorado |
| William Yancy.....       | New Windsor, Colorado  |
| Frank L. Young.....      | Denver, Colorado       |
| Lydia D. Zenor.....      | Fort Collins, Colorado |

#### SENIOR COMMERCIAL.

|                       |                        |
|-----------------------|------------------------|
| Sidney Arscott.....   | Fort Collins, Colorado |
| Minnie Balmer.....    | Monmouth, Illinois     |
| Minnie Beach.....     | Fort Collins, Colorado |
| Clara M. Bateman..... | Minchendon, Mass.      |
| Eva Calvert.....      | Fort Collins, Colorado |



|                          |                         |
|--------------------------|-------------------------|
| C. W. Candlin.....       | Greeley, Colorado       |
| Julia A. Crary.....      | Fort Collins, Colorado  |
| Perry D. Cunningham..... | Wray, Colorado          |
| Helen K. Devers.....     | Fort Collins, Colorado  |
| Frederic S. Fobes.....   | Virginia Dale, Colorado |
| Morris Fliniau.....      | Fort Collins, Colorado  |
| Nellie E. Herring.....   | Fort Collins, Colorado  |
| H. D. Hubbell.....       | Fort Collins, Colorado  |
| Mary E. Metcalfe.....    | Fort Collins, Colorado  |
| Alex. M. McNeil.....     | Denver, Colorado        |
| Mabel Ricketts.....      | Fort Collins, Colorado  |
| Ada Showers.....         | Fort Collins, Colorado  |
| Frank Slayton.....       | Fort Collins, Colorado  |
| Harry C. Strong.....     | Parker, Colorado        |
| Eleanor Tomlin.....      | Fort Collins, Colorado  |
| Howard Tubbs.....        | Fort Collins, Colorado  |
| Mellie Waggy.....        | Fort Collins, Colorado  |
| Harry E. West.....       | Trinidad, Colorado      |
| H. W. Wester.....        | Longmont, Colorado      |
| Hubert R. Woods.....     | Fort Collins, Colorado  |
| Roy Zobel.....           | Leadville, Colorado     |
| Nora Zenor.....          | Fort Collins, Colorado  |

#### JUNIOR COMMERCIAL.

|                          |                        |
|--------------------------|------------------------|
| Y. R. Balmer.....        | Monmouth, Illinois     |
| Alice Barry.....         | Fort Collins, Colorado |
| Alice S. Bartels.....    | Pueblo, Colorado       |
| Ralph Beaty.....         | Lakin, Kansas          |
| Stella Bell.....         | Fort Collins, Colorado |
| Edith Beers.....         | Fort Collins, Colorado |
| Gladys E. Blanchard..... | Fort Collins, Colorado |
| Julia Blanchard.....     | Fort Collins, Colorado |
| Anna Brose.....          | Fort Collins, Colorado |
| Birchcea W. DeLappe..... | Denver, Colorado       |
| Mabel H. Frank.....      | Walden, Colorado       |
| Belle E. Hayes.....      | Canon City, Colorado   |
| Ina B. Haxby.....        | Canon City, Colorado   |
| Myrtle Hoffman.....      | Fort Collins, Colorado |
| O. W. Ketner.....        | Fort Collins, Colorado |
| Emma Kissock.....        | Fort Collins, Colorado |



|                         |                        |
|-------------------------|------------------------|
| Mary McCabe.....        | Fort Collins, Colorado |
| John J. Milburn.....    | Denver, Colorado       |
| Harry H. Miller.....    | Fort Collins, Colorado |
| Gilbert R. Miller.....  | Fort Collins, Colorado |
| Benjamin Pfalzgraf..... | Cameron, Ohio          |
| George R. Sanford.....  | Denver, Colorado       |
| John F. Stearley.....   | Brookside, Colorado    |
| Edythe M. Tatman.....   | Pine Bluffs, Wyo.      |
| Ernest W. Thayer.....   | Fort Collins, Colorado |
| George Thompson.....    | Fort Collins, Colorado |
| Nora Thompson.....      | Fort Collins, Colorado |
| William H. Trimble..... | Fort Collins, Colorado |

## UNCLASSIFIED.

|                           |                           |
|---------------------------|---------------------------|
| Merlin H. Aylesworth..... | Fort Collins, Colorado    |
| Ezra K. Baer.....         | Meeker, Colorado          |
| Minnie M. Bailey.....     | Fort Collins, Colorado    |
| Willet Barton.....        | Monroe, Iowa              |
| Annie Beach.....          | Fort Collins, Colorado    |
| Gardner R. Cushing.....   | Fort Collins, Colorado    |
| Francis Chase.....        | Detroit, Michigan         |
| C. E. Dailey.....         | Fort Collins, Colorado    |
| Robert Dickenson.....     | La Fayette, Colorado      |
| Myra Eggleston.....       | Grand Junction, Colorado  |
| Alice G. Gant.....        | Fort Collins, Colorado    |
| Ava Gant.....             | Fort Collins, Colorado    |
| Henry C. George.....      | New Market, New Hampshire |
| G. A. Gerth.....          | Wyacond, Missouri         |
| Ida A. Gilkinson.....     | Fort Collins, Colorado    |
| Calvin Goodrich.....      | Fort Collins, Colorado    |
| Leonard Graves.....       | Bloomfield, Colorado      |
| Lenore Gunn.....          | Fort Collins, Colorado    |
| Delphine Harris.....      | Fort Collins, Colorado    |
| Effie L. Havener.....     | Fort Collins, Colorado    |
| Hellen Headden.....       | Fort Collins, Colorado    |
| Lillian Hoffman.....      | Fort Collins, Colorado    |
| Edward J. Iddings.....    | Peru, Indiana             |
| Benjamin A. Jones.....    | Berryville, Missouri      |
| John Johns.....           | Manhattan, Colorado       |
| Charles C. James.....     | St. Louis, Missouri       |

|                            |                            |
|----------------------------|----------------------------|
| Nellie M. Killgore.....    | Fort Collins, Colorado     |
| Ethel M. Laughlin.....     | Lasalle, Colorado          |
| Wm. J. McAnelly.....       | Fort Collins, Colorado     |
| Edith McGowan.....         | Fort Collins, Colorado     |
| Grace McGuire.....         | Oswego, Kansas             |
| Jessie Mills.....          | Fort Collins, Colorado     |
| Grace Neff.....            | Greeley, Colorado          |
| Emily Nelson.....          | Hooper, Nebraska           |
| Margarette Norvell.....    | Fort Collins, Colorado     |
| Lillian Olson.....         | Fort Collins, Colorado     |
| Ethel Olson.....           | Fort Collins, Colorado     |
| Jessie Piatt.....          | Fort Collins, Colorado     |
| J. B. Porter.....          | Richfield, Kansas          |
| Luther E. Potter.....      | Manhattan, Kansas          |
| Mary Quick.....            | Fort Collins, Colorado     |
| Robert Quillian.....       | Walsenburg, Colorado       |
| Jeannette Raeder.....      | Durango, Colorado          |
| Hazel Riddiford.....       | Fort Collins, Colorado     |
| Tews Rohlf.....            | Minden, Iowa               |
| Emilie Schlegelmilch.....  | Enclave, Wyoming           |
| Clarence H. Shay.....      | Loveland, Colorado         |
| Robert Sharp.....          | Denver, Colorado           |
| Howard D. Sharpe.....      | Denver, Colorado           |
| Lois Silcott.....          | Fort Collins, Colorado     |
| Gretchen Smith.....        | Greeley, Colorado          |
| Geff B. Southcott.....     | Colorado Springs, Colorado |
| Cromwell H. Southward..... | Norwood, Colorado          |
| Emma Storm.....            | Fort Collins, Colorado     |
| Lydia Sturgeon.....        | Golden, Colorado           |
| Robert C. Swallow.....     | Denver, Colorado           |
| Fanny A. Tenny.....        | Fort Collins, Colorado     |
| Anna Tuttle.....           | Boulder, Colorado          |
| Oscar Wolff.....           | Fort Collins, Colorado     |
| Clarence M. Wood.....      | Denver, Colorado           |
| Grace Woods.....           | Fort Collins, Colorado     |
| Maud T. Woods.....         | Fort Collins, Colorado     |
| Arthur Williams.....       | Denver, Colorado           |
| J. D. Worsham.....         | Denver, Colorado           |
| G. A. Wright.....          | Greeley, Colorado          |

## SUMMARY.

|                                                 | Male. | Female. | Total. |
|-------------------------------------------------|-------|---------|--------|
| Post-graduate .....                             | 6     | 0       | 6      |
| Senior .....                                    | 26    | 4       | 30     |
| Junior .....                                    | 30    | 10      | 40     |
| (No Sophomore Class owing to change of Course.) |       |         |        |
| Freshman .....                                  | 49    | 7       | 56     |
| Second Sub-Freshman .....                       | 61    | 18      | 79     |
| First Sub-Freshman .....                        | 129   | 33      | 162    |
| Senior Commercial .....                         | 14    | 13      | 27     |
| Junior Commercial .....                         | 13    | 15      | 28     |
| Unclassified .....                              | 41    | 24      | 65     |
| Total .....                                     | 369   | 124     | 493    |

## GRADUATES

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Albert M. Ten Eyck, M.S., 1897 (B.Agr. University of Wisconsin, 1893), Agriculturist, State Agricultural College, .....Manhattan, Kansas

Carl H. Potter, M.S., 1899 (B.S. University of Wisconsin, 1892), Assistant in Horticulture and Botany, Agricultural College of Colorado, 1899-1901, Horticulturist; deceased, 1902.

James W. Lawrence, M.S., 1902, Professor of Mechanical Engineering, State Agricultural College...Fort Collins, Colorado

1884.

George H. Glover, B.S. (M.S., 1902) (D.V.M., Iowa Agricultural College), Professor of Veterinary Science, Agricultural College of Colorado.....Fort Collins, Colorado

Elizabeth Coy, B.S. (Mrs. James W. Lawrence).....  
.....Fort Collins, Colorado

Leonidas Loomis, B.S., Stockman.....Fort Collins, Colorado

—3

1885.

Cora Bell Blinn, B.S.....Rocky Ford, Colorado

Edna L. Hice, B.S.....Fort Collins, Colorado

Lelia L. Loomis, B.S. (Mrs. T. H. Robertson).....

.....Fort Collins, Colorado

Grace Espy Patton, B.S. (M.S., 1897) (Mrs. W. H. Cowles),  
Journalist.....Manila, Philippine Islands

Robert E. Trimble, B.S., Assistant Meteorologist and Irrigation Engineer, Experiment Station, Agricultural College of Colorado.....Fort Collins, Colorado

Helen White, B.S. (Mrs. John Rigden).....Timnath, Colorado

—6

1886.

Wilbert J. Sickman, B.S., Clerk of the District Court of Larimer County, Colorado, until 1896; deceased.

—1

## 1887.

- Eleanor F. Gill, B.S. (Mrs. William Frazer).....  
 .....Black Hawk, Colorado  
 Marguerite E. Stratton, B.S., Librarian Agricultural College  
 of Colorado, 1895-1901; deceased, 1901.  
 Lerah G. Stratton, B.S. (Mrs. P. J. McHugh).....  
 .....Fort Collins, Colorado  
 Edwin G. Nettleton, B.S., Assistant Engineer Sonora and  
 Sinaloa Canal, Mexico, 1893; deceased.

—4

## 1888.

- Lewis A. Coffin, B.S., Miner.....Carbon, Colorado  
 Harvey H. Griffin, B.S., Agriculturist, Fort Collins Sugar Co.  
 .....Fort Collins, Colorado  
 Josephine Lee, B.S., Principal Teacher, City Schools.....  
 .....Boulder, Colorado  
 Jennie E. McLain, B.S. (Mrs. H. R. Corbett).....Chicago, Illinois

—4

## 1889.

- Lucy Bell, B.S. (Mrs. C. V. Benson).....Loveland, Colorado  
 Arthur L. Davis, B.S. (M.D., 1895, Gross Medical College,  
 Denver), Graduate Eye, Ear, Nose and Throat Medical  
 College of Chicago, 1900; Physician.....Durango, Colorado

—2

## 1890.

- Clarence V. Benson, B.S. (LL.B., University of Michigan,  
 1892; M. S., Agricultural College of Colorado, 1896);  
 Cashier Bank of Loveland.....Loveland, Colorado  
 Velma V. Benson, B.S. (Mrs. A. Beebe)....Fort Collins, Colorado  
 Burt C. Buffum, B.S. (M.S., 1893), Professor of Agriculture  
 and Director of the Experiment Station, University of  
 Wyoming .....Laramie, Wyoming  
 Charles A. Duncan, B.S., Farmer.....Timnath, Colorado  
 Newton C. Garbutt, B.S., Attorney-at-Law..Fort Collins, Colorado  
 Helen E. Lunn, B.S. (Mrs. T. J. Montgomery).....  
 .....Fort Collins, Colorado  
 Harry R. Temple, B.S., Engineer, Boulder Flour Mill and Ele-  
 vator Company.....Boulder, Colorado



Cora B. Thoman, B.S. (Mrs. Clarence Jarbeau).....  
 .....Georgetown, Colorado  
 Mary L. Weaver, B.S. (Ph.B., Ohio State University) .Urban, Ohio

—9

1891.

John S. Calkins, B.S., Farmer and Stockman....Harris, Colorado  
 Charles R. Evans, B.S., Stockman and Fruit Grower.....  
 .....Fort Collins, Colorado  
 Minnie E. McLain, B.S., Teacher.....Fort Lupton, Colorado

—3

1892.

Charles W. Beach, B.S. (B.S., University of Illinois, 1894),  
 Assistant Engineer, Great Plains Storage and Irrigation  
 Company.....Las Animas, Colorado  
 Frank Beach, B.S. (M.S., 1896), Farmer and Stockman.....  
 .....Las Animas, Colorado  
 Alice Bell, B.S. (Mrs. S. L. Boothroyd)....Fort Collins, Colorado  
 Samuel Bell, B.S. (M.D., University of Denver, 1896), Physi-  
 cian.....Meeker, Colorado  
 Don A. Carpenter, B.S., Southwestern Manager Sullivan Ma-  
 chinery Company.....El Paso, Texas  
 Porter J. Preston, B.S., Deputy State Engineer .....  
 .....Denver, Colorado  
 Albert J. Sedgwick, B.S, Journalist.....Toledo, Ohio  
 Lewis L. Stimson, B.S., County Surveyor Weld County.....  
 .....Greeley, Colorado  
 Frank H. Thompson, B.S., Assistant General Agent, Pacific  
 Mutual Life Insurance Company.....Fort Collins, Colorado

—9

1893.

John D. Bloomfield, B.S., Cashier Citizens' State Bank.....  
 .....Nampa, Idaho  
 Samuel L. Boothroyd, B.S., Instructor, Department of Physics  
 and Civil Engineering, Agricultural College of Colorado.  
 .....Fort Collins, Colorado  
 Ida M. Lewis, B.S. (Mrs. J. T. Douglas); deceased, 1894.  
 Charles J. Gilkison, B.S., Farmer and Stockman.....  
 .....Fort Collins, Colorado  
 William J. Ralph, B.S., Deputy Postmaster.Fort Collins, Colorado

Raymond F. Walter, B.S., Engineer of Greeley; Deputy State  
 Engineer.....Greeley, Colorado  
 William W. Willard, B.S., Merchant.....Twin Lakes, Colorado

—7

## 1894.

Philo K. Blinn, B.S., Superintendent Arkansas Valley Sub-  
 Station.....Rocky Ford, Colorado  
 Jacob H. Cowen, B.S. (B.Agr. Cornell University, 1899), Pro-  
 fessor of Botany and Horticulture, Agricultural College  
 of Colorado, 1900; deceased, 1900.  
 Will H. Fairfield, B.S. (M.S., 1898), Experimentalist Canad-  
 ian-Northwestern Irrigation Company.....  
 .....Lethbridge, Alberta, Canada  
 Minnie F. Harrington, B.S. (Mrs. W. F. Gilkison).....  
 .....Laramie, Wyoming  
 Herbert S. Kendall, Merchant.....Denver, Colorado  
 Celia May Southworth, B.S. (Mrs. Frank Beach).....  
 .....Las Animas, Colorado  
 Harlan Thomas, B.S., Member State Board of Agriculture of  
 Colorado; Architect..511 McPhee Building, Denver, Colorado

—7

## 1895.

Jean B. Balcomb, B.S., Mining Engineer.....  
 .....24 Post Street, San Francisco, California  
 Herbert A. Black, B.S., Manager, Brooks Lumber Company..  
 .....Fort Collins, Colorado  
 Edith G. Boothroyd, B.S. (Mrs. Ogilvy).....Arkins, Colorado  
 Henry A. Calkins, B.S. (M.D., Denver College of Medicine,  
 1901), Physician.....Denver, Colorado  
 Edward P. Cooke, B.S., Money Clerk, United States and Pa-  
 cific Express Companies.....Des Moines, Iowa  
 Loren B. Curtis, B.S., Assistant Constructing Engineer for  
 Denver Tramway Company.....Denver, Colorado  
 William F. Gilkison, B.S. (M.E., 1898), Professor of Mechani-  
 cal Engineering, University of Wyoming..Laramie, Wyoming  
 Ella G. Goldsborough, B.S. (Mrs. E. C. Reed).....  
 .....Fort Collins, Colorado  
 Seth C. Lewis, B.S., Farmer.....Timnath, Colorado

Edgar A. Mead, B.S., Farmer.....Greeley, Colorado  
 George W. Nelson, B.S., Farmer and Stockman..Denver, Colorado  
 Frances C. Schelt, B.S. (Mrs. Cunningham) .Fort Collins, Colorado  
 Walter K. Starbird, B.S., Stockman.....Ault, Colorado

—13

1896.

Fred Alford, B.S., Assistant Chemist, Agricultural College of  
 Colorado.....Fort Collins, Colorado  
 Henry F. Alps, B.S., Observer United States Weather Bureau  
 .....Lewiston, Idaho  
 William E. Becker, B.S., Letter Carrier....Dowagiac, Michigan  
 Florence J. Boothroyd, B.S. (Mrs. W. W. Hoagland).....  
 .....Omaha, Nebraska  
 Alfred H. Bungardt, B.S. (M.D., 1900, University Medical Col-  
 lege, Kansas City), Physician and Surgeon.....  
 .....Cordell, Oklahoma  
 Allen P. Greenacre, B.S., Stockman.....Fort Collins, Colorado  
 Robinson W. Hawley, B.S., Civil Engineer on Oregon Short  
 Line..... Robinson, Utah  
 John E. Kiteley, B.S., Farmer.....Longmont, Colorado  
 Richard A. Maxfield, B.S., Professor of Military Science and  
 Tactics, Agricultural College of Colorado.....  
 .....Fort Collins, Colorado  
 Abner S. McKee, B.S., Assayer.....  
 .....1727 Champa Street, Denver, Colorado  
 Grafton S. Norman, B.S., Instructor in Mathematics and Agri-  
 culturist, Agriculture and Mechanical College.....  
 .....Normal, Alabama  
 Robert W. Sears, B.S., Stockman.....Fowler, Colorado

—12

1897.

May A. Dievendorf, B.S. (Mrs. Frank Miller).....  
 .....Fort Collins, Colorado  
 Bertram A. Gage, B.S., Assistant Cashier, Fort Collins Na-  
 tional Bank.....Fort Collins, Colorado  
 Martha R. Gilkison, B.S. (Mrs. Frank Woods).....  
 .....Fort Collins, Colorado

|                                                                                                                               |                                |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Robert S. Gray, B.S., Teacher, Civil Service Commission.....                                                                  | Zambonango, Philippine Islands |
| Archie J. Harris, B.S., First Lieutenant Second United States Infantry.....                                                   | Manila, Philippine Islands     |
| Ralph H. Hess, B.S., Secretary to the President and Manager of the Text-Book Department Agricultural College of Colorado..... | Fort Collins, Colorado         |
| Alta E. Lewis, B.S. (Mrs. B. H. Bush).....                                                                                    | Livermore, Colorado            |
| Smith D. Philip, B.S., Superintendent, Colorado Condensed Milk Company.....                                                   | Fort Lupton, Colorado          |
| Anna L. Picken, B.S. (Mrs. N. C. Warren); deceased, 1901.                                                                     |                                |
| Mary E. Prendergast, B.S., Teacher of Domestic Science, State Industrial School for Girls.....                                | Morrison, Colorado             |
| David J. Richards, B.S., Deputy Postmaster.....                                                                               | Manila, Philippine Islands     |

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## 1898.

|                                                                            |                       |
|----------------------------------------------------------------------------|-----------------------|
| Emil Affolter, B.S., Farmer.....                                           | Longmont, Colorado    |
| Herman S. Brown, B.S., Maintenance of Wyo. D. & R. G. Co. ....             | Salida, Colorado      |
| Raymond C. Calloway, B.S., Farmer.....                                     | Bellvue, Washington   |
| William A. Dickens, B.S., Farmer.....                                      | Longmont, Colorado    |
| Jesse W. Goodwin, B.S., Machinist, U. P. Ry. Co.....                       | Cheyenne, Wyoming     |
| Fred S. Hotchkiss, B.S., Farmer and Engineer.....                          | Hotchkiss, Colorado   |
| Amos Jones, United States Geological Survey .....                          | Leadville, Nevada     |
| Herbert C. Matthews, B.S., Machinist....                                   | Monte Vista, Colorado |
| Bernard J. Prendergast, B.S., Manager Brighton Water Works .....           | Brighton, Colorado    |
| Linnie M. Rutledge, B.S.; deceased, 1900.                                  |                       |
| Charles E. Swann, B.S., Assistant Engineer Union Pacific Coal Company..... | Rock Springs, Wyoming |
| Melvin D. Williams, B.S., United States Geological Survey..                | Ehrenburg, Arizona    |
| Thomas J. Warren, B.S., Draughtsman, Colorado Fuel and Iron Company.....   | Pueblo, Colorado      |

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1899.

|                                                                                                      |                                             |
|------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Lee R. Cooke, B.S., Machinist, Beet Sugar Factory.....                                               |                                             |
| .....                                                                                                | Fort Collins, Colorado                      |
| Frank Corbin, B.S., Lumber Dealer.....                                                               | Fort Collins, Colorado                      |
| Howard E. Emigh, B.S. (M. E., 1901), Officer State Industrial<br>School.....                         | Golden, Colorado                            |
| Raymond R. Fisk, B.S., Merchant.....                                                                 | Fort Collins, Colorado                      |
| Newton M. Fitch, B.S., Resident Engineer, Texas and Okla-<br>homa R. R.....                          | Ada, Indian Territory                       |
| Lewis C. Hall, B.S., City Engineer.....                                                              | Canon City, Colorado                        |
| William R. Headden, B.S., Student.....                                                               | Troy, New York                              |
| Herman Howard, B.S., Machinist Southern Pacific Railroad..                                           |                                             |
| .....                                                                                                | Wadsworth, Nevada                           |
| Addison L. Kellogg, B.S., Student of Law...Ann Arbor, Michigan                                       |                                             |
| William J. Littleton, B.S.....                                                                       | Trinidad, Colorado                          |
| Charles W. Mayers, B.S., Artesian Well Contractor.....                                               |                                             |
| .....                                                                                                | Littleton, Colorado                         |
| Harry C. Miller, B.S., Pharmacist.....                                                               | Silverton, Colorado                         |
| Jacob C. Mulder, B.S., Provincial Supervisor, Province of<br>Bohol.....                              | Tagbilaran, Philippine Islands              |
| Charles S. Newell, B.S., Chief Inspector, Colorado Telephone<br>Company.....                         | 131 Crystal Street, Cripple Creek, Colorado |
| Marguerite Prendergast, B.S., Instructor in Domestic Science,<br>Colorado Fuel and Iron Company..... | Trinidad, Colorado                          |
| George A. Smith, B.S., Teacher, Monte Vista High School...                                           |                                             |
| .....                                                                                                | Monte Vista, Colorado                       |
| James A. Stump, B.S., Law Student.....                                                               | Ann Arbor, Michigan                         |
| Edward S. G. Titus, B.S., Assistant State Entomologist.....                                          |                                             |
| .....                                                                                                | Urbana, Illinois                            |

—18

1900.

|                                                                              |                         |
|------------------------------------------------------------------------------|-------------------------|
| Abbie C. Alford, B.S. (Mrs. R. A. Maxfield) .                                | Fort Collins, Colorado  |
| Laura Armstrong, B.S. (Mrs. E. S. G. Titus).....                             | Urbana, Illinois        |
| Clifford S. Atherly, B.S., Letter Carrier....                                | Fort Collins, Colorado  |
| Clara M. Cunningham, B.S.....                                                | Fort Collins, Colorado  |
| Thomas M. Donelson, B.S., Assistant Engineer, Mexican Cen-<br>tral R. R..... | Agnes Calientes, Mexico |



- Earl Douglass, B.S., Assistant Chemist, Agricultural Experiment Station of Colorado.....Fort Collins, Colorado
- Nellie M. Drake, B.S. (Graduate, Armour Institute, Chicago, 1901), Assistant, Department of Domestic Science, Agricultural College of Colorado.....Fort Collins, Colorado
- Stuart B. Garbutt, B.S., Stock Clerk, Wright and Wilhelmy Co.....2512 Chicago Street, Omaha, Nebraska
- Walter P. Hurley, B.S., Druggist.....Fort Collins, Colorado
- Adolph F. Lindon, B.S., Dairy and Stock Farmer.....  
.....Haxtum, Colorado
- Otto W. Lunnon, B.S., Electrician.....Fort Collins, Colorado
- Roy S. Lumry, B.S., Employe, Cheyenne Light, Fuel and Power Company.....Cheyenne, Wyoming
- William F. Marshall, B.S.....Scotland
- Ray E. McClave, B.S., Farmer and Stockman.....  
.....Platteville, Colorado
- Emmet C. McAnelly, B.S., County Surveyor Larimer County.  
.....Fort Collins, Colorado
- Dana Q. McComb, B.S., Teacher.....Rand, Colorado
- Harry H. Murray, B.S.; deceased, 1901.
- Elizabeth A. Nugent, B.S. (Mrs. Runyan)..Fort Collins, Colorado
- Robert A. Pierce, B.S., Division Mine Engineer, Colorado  
Fuel and Iron Company.....Denver, Colorado
- Etta E. Richardson, B.S., Teacher.....Fort Collins, Colorado
- Ethel M. Smith, B.S.....Fort Collins, Colorado
- Edwin A. Sutton, B.S., Assistant Superintendent Colorado  
Fuel and Iron Company.....Denver, Colorado
- Pauline W. Taft, B.S.....Laporte, Colorado
- Oliver B. Tomlin, B.S., Letter Carrier....Fort Collins, Colorado
- Frances M. Warren, B.S. (Mrs. C. J. Gilkison).....  
.....Fort Collins, Colorado
- Anna M. Wood, B.S., Stenographer, Denver Post.....  
.....Denver, Colorado

- James H. Andrews, B.S., Student.....Fort Collins, Colorado
- Rolland N. Bonnett, B.S., Farmer.....Fort Collins, Colorado
- Leroy A. Baker, B.S., Fellow Department of Mathematics, Agricultural College of Colorado.....Fort Collins, Colorado

|                                                                                                                 |                         |
|-----------------------------------------------------------------------------------------------------------------|-------------------------|
| Barton G. D. Bishopp, B.S., Assistant, Department of Chemistry and Geology Agricultural Experiment Station..... |                         |
| .....                                                                                                           | Fort Collins, Colorado  |
| Luther D. Cowan, B.S., Farmer.....                                                                              | Lasalle, Colorado       |
| Ralph W. Haynes, B.S., Farmer.....                                                                              | Fort Lupton, Colorado   |
| Ross D. Howard, B.S., Employe, Cambrian Iron Works.....                                                         |                         |
| .....                                                                                                           | Johnstown, Pennsylvania |
| Royall S. Howlett, B.S., Instructor in Mathematics, State Agricultural College.....                             | Fort Collins, Colorado  |
| Antoine Jacob, B.S., Assistant Engineer, U. S. Geological Survey.....                                           | Las Animas, Colorado    |
| Cyrus E. McComb, B.S., Telephone Inspector, The Colorado Telephone Company.....                                 | Fort Collins, Colorado  |
| Thomas W. Metcalfe, B.S., Stockman.....                                                                         | Fort Collins, Colorado  |
| Bertha M. Newlon, B.S. (Mrs. Wells).....                                                                        | San Jose, California    |
| Richard R. Parks, B.S., Superintendent, J. R. Parks Mill Company.....                                           | Denver, Colorado        |
| Frank O. Rasmussen, B.S., Mechanical Engineer and Draftsman, Colorado Fuel and Iron Company.....                | Pueblo, Colorado        |
| Glynn B. Stannard, B.S., Assistant Engineer, Colorado Fuel and Iron Company.....                                | Denver, Colorado        |
| Waltgen B. Smith, B.S., Chemist, Greeley Sugar Company...                                                       |                         |
| .....                                                                                                           | Greeley, Colorado       |
| Henry F. Sturdevant, B.S., Student.....                                                                         | Ann Arbor, Michigan     |
| Ned V. Tanner, B.S., Gauger, United Oil Company.....                                                            |                         |
| .....                                                                                                           | Florence, Colorado      |
| Richard W. Tanner, B.S., Student of Law.....                                                                    | Florence, Colorado      |
| Oma M. Veazey, B.S.....                                                                                         | Fort Collins, Colorado  |
| John Wilson, B.S., Bank Clerk.....                                                                              | Eaton, Colorado         |

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1902.

|                                                                                               |                        |
|-----------------------------------------------------------------------------------------------|------------------------|
| Lorna E. Annis, B.S.....                                                                      | Fort Collins, Colorado |
| Fred C. Bishopp, B.S., Fellow Department of Zoology and Entomology, Agricultural College..... | Fort Collins, Colorado |
| Addie S. Bristoll (Mrs. Frank Brown), B.S.....                                                |                        |
| .....                                                                                         | Fort Collins, Colorado |
| Lewis E. Cattell, B.S., Surveyor.....                                                         | Hopedale, Ohio         |
| Wilhelmine Douglass, B.S., Bookkeeper....                                                     | Fort Collins, Colorado |
| Howard J. Faulkner, B.S., Farmer.....                                                         | Fort Collins, Colorado |

|                                                                                                            |                        |
|------------------------------------------------------------------------------------------------------------|------------------------|
| Ernest N. Graves, B.S., Fellow Department of Mechanical Engineering, Agricultural College of Colorado..... | Fort Collins, Colorado |
| Nellie M. Killgore, B.S., Student.....                                                                     | Fort Collins, Colorado |
| Oro McDermith, B.S., Fellow Department of Civil Engineering, Agricultural College of Colorado.....         | Fort Collins, Colorado |
| Oliver P. Pennock, B.S., Engineer.....                                                                     | Bellvue, Colorado      |
| Robert E. Richardson, B.S., Assistant Division Engineer of Mines, C., F. & I. Co.....                      | Denver, Colorado       |
| Olive L. Sheldon, B.S., Student National Park Seminary, Forest Glenn, Md.....                              | Fort Collins, Colorado |
| Harry True, B.S., Fellow Department of Civil Engineering, Colorado Agricultural College.....               | Fort Collins, Colorado |
| Eleanor Tomlin, B.S., Student.....                                                                         | Fort Collins, Colorado |
| Estes P. Taylor, B.S., Assistant, Department of Entomology and Botany, State College of Kentucky..         | Lexington, Kentucky    |

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### COMMERCIAL COURSE.

1898.

|                                                                                           |                                    |
|-------------------------------------------------------------------------------------------|------------------------------------|
| Charles L. Arnell, Locomotive Fireman.....                                                | Alamosa, Colorado                  |
| Ray J. Baker, Assistant Foreman, North Poudre Irrigation Company.....                     | Fort Collins, Colorado             |
| William A. Doty, Bookkeeper and Stenographer, Denver City Tramway Company.....            | Mendota Block, Denver, Colorado    |
| Frank L. Garnick, Mechanic.....                                                           | Fort Collins, Colorado             |
| Richard E. Hammond, Salesman, American Radiator Company.....                              | Denver, Colorado                   |
| Agnes L. Hawley, Stenographer, Centennial Oil Company.....                                | Pueblo, Colorado                   |
| Pearl Hays, Instructor in Stenography and Typewriting, Kentucky Female Orphan School..... | Midway, Kentucky                   |
| Julius P. Olson, Manager, Gypsum Branch W. J. Riley Mercantile Company.....               | Gypsum, Colorado                   |
| Inez Smith, Stenographer.....                                                             | Denver, Colorado                   |
| Bessie C. Wood (Mrs. Smith) ..                                                            | 2517 Clay Street, Denver, Colorado |

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1899.

|                                                                                         |                        |
|-----------------------------------------------------------------------------------------|------------------------|
| Byron K. Baird, United States Revenue Service.....                                      | Honolulu, Hawaii       |
| Charles J. Gilkison, B.S., Farmer and Stockman.....                                     | Fort Collins, Colorado |
| William R. Headden, B.S., Engineering Student, Renssalaer<br>Polytechnic Institute..... | Troy, New York         |
| George F. Kern, Agriculturalist.....                                                    | New Windsor, Colorado  |
| Lizzie M. Nicholson (Mrs. Hershey).....                                                 | Denver, Colorado       |
| Cecil G. Philip, Lumber Merchant.....                                                   | Fort Lupton, Colorado  |

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1900.

|                                                                                                                     |                        |
|---------------------------------------------------------------------------------------------------------------------|------------------------|
| Eunice Chatfield, Stenographer, J. M. Kellin & Company....                                                          | Pueblo, Colorado       |
| Mary A. Dickerson, Stenographer and Bookkeeper.....                                                                 | Denver, Colorado       |
| James Elliott, Farmer.....                                                                                          | Timnath, Colorado      |
| L. Cale Estes, Student.....                                                                                         | Fort Collins, Colorado |
| Mary E. Quick, Stenographer.....                                                                                    | Fort Collins, Colorado |
| Edith Schang (Mrs. F. C. Wilkes).....                                                                               | Farmington, California |
| Emmet O. Smith, Merchant.....                                                                                       | Merino, Colorado       |
| Pearl Smith (Mrs. Brooks) .416 Fillmore Street, Denver, Colorado                                                    |                        |
| Marion E. Warren, Instructor in Bookkeeping and Stenog-<br>raphy, University of Wyoming, 1900-1901; deceased, 1901. |                        |

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1901.

|                                                                                   |                            |
|-----------------------------------------------------------------------------------|----------------------------|
| Cora M. Anderson, Bookkeeper and Stenographer.....                                | Fort Collins, Colorado     |
| Robert A. Brown, Bookkeeper and Stenographer, Denver Sav-<br>ings Bank.....       | Denver, Colorado           |
| Dudley G. Dwyre, Stenographer, United States Civil Service,<br>.....              | Manila, Philippine Islands |
| Spencer Farmer, Merchant.....                                                     | Fort Collins, Colorado     |
| Eda H. McCain, Stenographer.....                                                  | Fort Collins, Colorado     |
| Edwin W. Smith, Principal Commercial Department, North<br>Denver High School..... | Denver, Colorado           |
| Henry P. Roberts, Bookkeeper and Stenographer.....                                | Denver, Colorado           |

Jennie M. Welch, Stenographer, Laramie Light and Power  
Company.....Fort Collins, Colorado  
Bernice E. Youngson (Mrs. Amen).....Denver, Colorado

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1902.

Albert E. Baylis, Accountant and Stenographer Mesa County  
State Bank.....Grand Junction, Colorado  
Annie C. Beach.....Fort Collins, Colorado  
Maud E. Benson, Stenographer and Bookkeeper.....  
.....Fort Worth, Texas  
Clara Barry, Stenographer.....Fort Collins, Colorado  
Horace M. Cattell, Stenographer and Bookkeeper. Eaton, Colorado  
Emma L. Case, Stenographer.....Fort Collins, Colorado  
Lena M. Gilkison, Stenographer.....Fort Collins, Colorado  
George Richardson, Bookkeeper and Stenographer, W. J.  
Riley Mercantile Co.....Gypsum, Colorado  
Florence M. Roller, Stenographer, First National Bank.....  
.....Fort Collins, Colorado  
Delano F. Scott, Bookkeeper and Stenographer.....  
.....Fort Collins, Colorado  
Charles H. Sisson, Stenographer, W. J. Riley Mercantile Com-  
pany.....Eagle, Colorado  
Irwin Sisson, Stenographer, W. J. Riley Mercantile Company,  
.....Eagle, Colorado  
George F. Schattinger, Stenographer.....Denver, Colorado  
Claude J. Wilson, Bookkeeper, J. W. Hugus & Company....  
.....Meeker, Colorado



**OFFICERS OF THE ALUMNI ASSOCIATION.**  

---

|                     |                      |
|---------------------|----------------------|
| President.....      | Earl Douglass        |
| Vice-President..... | James A. Stump       |
| Secretary.....      | Mrs. Frank Woods     |
| Treasurer.....      | Dr. George H. Glover |

1903

## CALENDAR

1903

|      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |       | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |   |
|------|------|------|-------|------|-------|------|------|------|------|------|-------|------|-------|------|------|-------|------|------|-------|------|-------|------|------|---|
| Jan. | 4    | 5    | 6     | 7    | 8     | 9    | 10   | May  | 3    | 4    | 5     | 6    | 7     | 8    | 9    | Sept. | 6    | 7    | 8     | 9    | 10    | 11   | 12   |   |
|      | 11   | 12   | 13    | 14   | 15    | 16   | 17   |      | 10   | 11   | 12    | 13   | 14    | 15   | 16   |       | 13   | 14   | 15    | 16   | 17    | 18   | 19   |   |
|      | 18   | 19   | 20    | 21   | 22    | 23   | 24   |      | 17   | 18   | 19    | 20   | 21    | 22   | 23   |       | 20   | 21   | 22    | 23   | 24    | 25   | 26   |   |
|      | 25   | 26   | 27    | 28   | 29    | 30   | 31   |      | 24   | 25   | 26    | 27   | 28    | 29   | 30   |       | 27   | 28   | 29    | 30   | ...   | ...  | ...  |   |
| Feb. | 1    | 2    | 3     | 4    | 5     | 6    | 7    | June | ...  | 1    | 2     | 3    | 4     | 5    | 6    | Oct.  | ...  | ...  | ...   | ...  | 1     | 2    | 3    |   |
|      | 8    | 9    | 10    | 11   | 12    | 13   | 14   |      | 7    | 8    | 9     | 10   | 11    | 12   | 13   |       | 4    | 5    | 6     | 7    | 8     | 9    | 10   |   |
|      | 15   | 16   | 17    | 18   | 19    | 20   | 21   |      | 14   | 15   | 16    | 17   | 18    | 19   | 20   |       | 11   | 12   | 13    | 14   | 15    | 16   | 17   |   |
|      | 22   | 23   | 24    | 25   | 26    | 27   | 28   |      | 21   | 22   | 23    | 24   | 25    | 26   | 27   |       | 18   | 19   | 20    | 21   | 22    | 23   | 24   |   |
|      | ...  | ...  | ...   | ...  | ...   | ...  | ...  |      | 28   | 29   | 30    | ...  | ...   | ...  | ...  |       | 25   | 26   | 27    | 28   | 29    | 30   | 31   |   |
| Mar. | 1    | 2    | 3     | 4    | 5     | 6    | 7    | July | ...  | ...  | 1     | 2    | 3     | 4    | Nov. | 1     | 2    | 3    | 4     | 5    | 6     | 7    |      |   |
|      | 8    | 9    | 10    | 11   | 12    | 13   | 14   |      | 5    | 6    | 7     | 8    | 9     | 10   | 11   |       | 8    | 9    | 10    | 11   | 12    | 13   | 14   |   |
|      | 15   | 16   | 17    | 18   | 19    | 20   | 21   |      | 12   | 13   | 14    | 15   | 16    | 17   | 18   |       | 15   | 16   | 17    | 18   | 19    | 20   | 21   |   |
|      | 22   | 23   | 24    | 25   | 26    | 27   | 28   |      | 19   | 20   | 21    | 22   | 23    | 24   | 25   |       | 22   | 23   | 24    | 25   | 26    | 27   | 28   |   |
|      | 29   | 30   | 31    | ...  | ...   | ...  | ...  |      | 26   | 27   | 28    | 29   | 30    | 31   | ...  |       | 29   | 30   | ...   | ...  | ...   | ...  | ...  |   |
| Apr. | ...  | ...  | ...   | ...  | 1     | 2    | 3    | Aug. | ...  | ...  | ...   | ...  | ...   | ...  | 1    | Dec.  | ...  | ...  | ...   | 1    | 2     | 3    | 4    | 5 |
|      | 5    | 6    | 7     | 8    | 9     | 10   | 11   |      | 2    | 3    | 4     | 5    | 6     | 7    | 8    |       | 6    | 7    | 8     | 9    | 10    | 11   | 12   |   |
|      | 12   | 13   | 14    | 15   | 16    | 17   | 18   |      | 9    | 10   | 11    | 12   | 13    | 14   | 15   |       | 13   | 14   | 15    | 16   | 17    | 18   | 19   |   |
|      | 19   | 20   | 21    | 22   | 23    | 24   | 25   |      | 16   | 17   | 18    | 19   | 20    | 21   | 22   |       | 20   | 21   | 22    | 23   | 24    | 25   | 26   |   |
|      | 26   | 27   | 28    | 29   | 30    | ...  | ...  |      | 23   | 24   | 25    | 26   | 27    | 28   | 29   |       | 27   | 28   | 29    | 30   | 31    | ...  | ...  |   |
|      | ...  | ...  | ...   | ...  | ...   | ...  | ...  |      | 30   | 31   | ...   | ...  | ...   | ...  | ...  |       | ...  | ...  | ...   | ...  | ...   | ...  | ...  |   |

1904

## CALENDAR

1904

|      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |      | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |       | Sun. | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |
|------|------|------|-------|------|-------|------|------|------|------|------|-------|------|-------|------|------|-------|------|------|-------|------|-------|------|------|
| Jan. | 3    | 4    | 5     | 6    | 7     | 8    | 9    | May  | 1    | 2    | 3     | 4    | 5     | 6    | 7    | Sept. | 4    | 5    | 6     | 7    | 8     | 9    | 10   |
|      | 10   | 11   | 12    | 13   | 14    | 15   | 16   |      | 8    | 9    | 10    | 11   | 12    | 13   | 14   |       | 11   | 12   | 13    | 14   | 15    | 16   | 17   |
|      | 17   | 18   | 19    | 20   | 21    | 22   | 23   |      | 15   | 16   | 17    | 18   | 19    | 20   | 21   |       | 18   | 19   | 20    | 21   | 22    | 23   | 24   |
|      | 24   | 25   | 26    | 27   | 28    | 29   | 30   |      | 22   | 23   | 24    | 25   | 26    | 27   | 28   |       | 25   | 26   | 27    | 28   | 29    | 30   | ...  |
|      | 31   | ...  | ...   | ...  | ...   | ...  | ...  |      | 29   | 30   | 31    | ...  | ...   | ...  | ...  |       | ...  | ...  | ...   | ...  | ...   | ...  | ...  |
| Feb. | ...  | 1    | 2     | 3    | 4     | 5    | 6    | June | ...  | ...  | 1     | 2    | 3     | 4    | Oct. | 2     | 3    | 4    | 5     | 6    | 7     | 8    |      |
|      | 7    | 8    | 9     | 10   | 11    | 12   | 13   |      | 5    | 6    | 7     | 8    | 9     | 10   | 11   |       | 9    | 10   | 11    | 12   | 13    | 14   | 15   |
|      | 14   | 15   | 16    | 17   | 18    | 19   | 20   |      | 12   | 13   | 14    | 15   | 16    | 17   | 18   |       | 16   | 17   | 18    | 19   | 20    | 21   | 22   |
|      | 21   | 22   | 23    | 24   | 25    | 26   | 27   |      | 19   | 20   | 21    | 22   | 23    | 24   | 25   |       | 23   | 24   | 25    | 26   | 27    | 28   | 29   |
|      | 28   | 29   | ...   | ...  | ...   | ...  | ...  |      | 26   | 27   | 28    | 29   | 30    | ...  | ...  |       | 30   | 31   | ...   | ...  | ...   | ...  | ...  |
| Mar. | ...  | ...  | 1     | 2    | 3     | 4    | 5    | July | ...  | ...  | ...   | ...  | 1     | 2    | Nov. | ...   | ...  | 1    | 2     | 3    | 4     | 5    |      |
|      | 6    | 7    | 8     | 9    | 10    | 11   | 12   |      | 3    | 4    | 5     | 6    | 7     | 8    |      | 6     | 7    | 8    | 9     | 10   | 11    | 12   |      |
|      | 13   | 14   | 15    | 16   | 17    | 18   | 19   |      | 10   | 11   | 12    | 13   | 14    | 15   | 16   |       | 13   | 14   | 15    | 16   | 17    | 18   | 19   |
|      | 20   | 21   | 22    | 23   | 24    | 25   | 26   |      | 17   | 18   | 19    | 20   | 21    | 22   | 23   |       | 20   | 21   | 22    | 23   | 24    | 25   | 26   |
|      | 27   | 28   | 29    | 30   | 31    | ...  | ...  |      | 24   | 25   | 26    | 27   | 28    | 29   | 30   |       | 27   | 28   | 29    | 30   | ...   | ...  | ...  |
| Apr. | ...  | ...  | ...   | ...  | ...   | 1    | 2    | Aug. | 31   | ...  | ...   | ...  | ...   | ...  | ...  |       | ...  | ...  | ...   | ...  | 1     | 2    | 3    |
|      | 3    | 4    | 5     | 6    | 7     | 8    | 9    |      | ...  | 1    | 2     | 3    | 4     | 5    | 6    | De c. | 4    | 5    | 6     | 7    | 8     | 9    | 10   |
|      | 10   | 11   | 12    | 13   | 14    | 15   | 16   |      | ...  | 7    | 8     | 9    | 10    | 11   | 12   |       | 11   | 12   | 13    | 14   | 15    | 16   | 17   |
|      | 17   | 18   | 19    | 20   | 21    | 22   | 23   |      | ...  | 14   | 15    | 16   | 17    | 18   | 19   |       | 18   | 19   | 20    | 21   | 22    | 23   | 24   |
|      | 24   | 25   | 26    | 27   | 28    | 29   | 30   |      | ...  | 21   | 22    | 23   | 24    | 25   | 26   |       | 25   | 26   | 27    | 28   | 29    | 30   | 31   |
|      | ...  | ...  | ...   | ...  | ...   | ...  | ...  |      | ...  | 28   | 29    | 30   | 31    | ...  | ...  |       | ...  | ...  | ...   | ...  | ...   | ...  | ...  |

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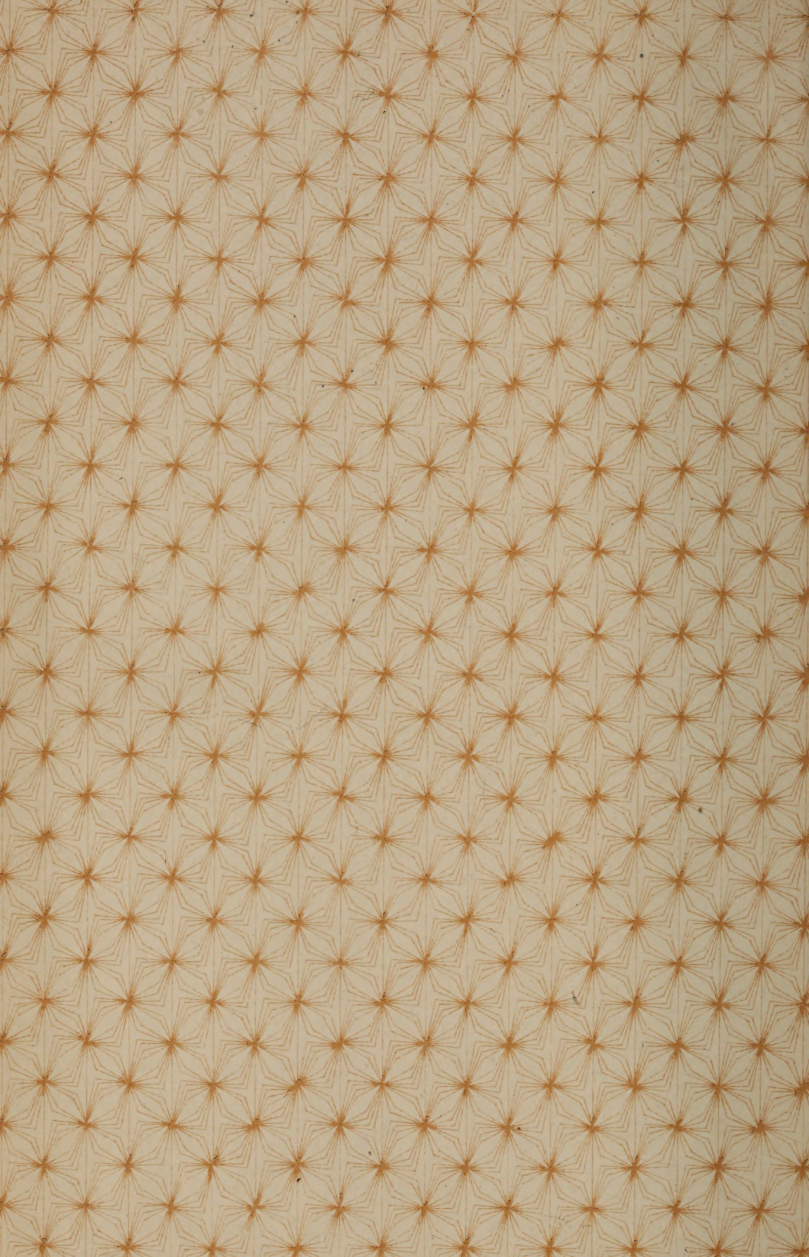


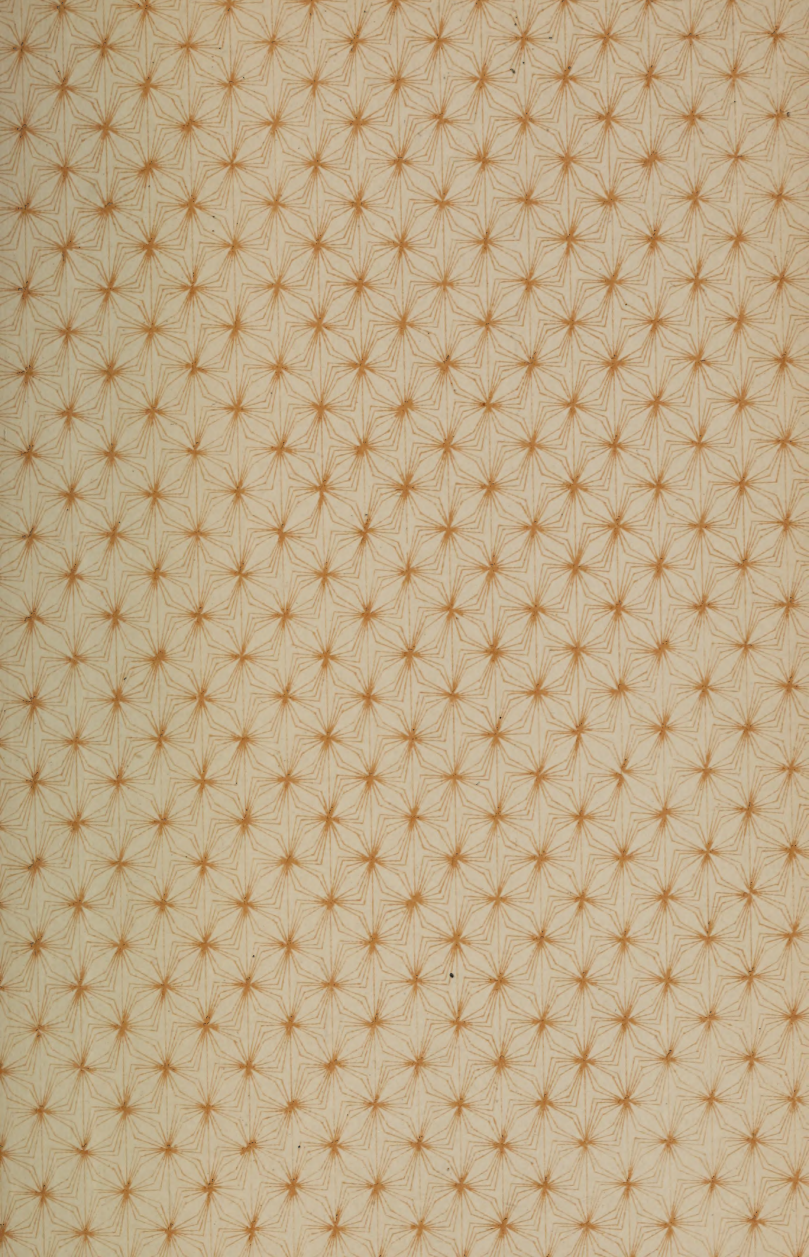














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